BUSINESS MICRO COMPUTERS
U.K. DISTRIBUTION OPTIONS

INPUT EUROPE

ABOUT INPUT

THE COMPANY

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, comm
products and servic

The company carr
depth research. W
on important issue
analyse and inte
then develop reco
ideas to meet clie
reports, presenta
which analyses a
consulting.

Many of INPUT's
have nearly 20
areas of special
senior manageme
marketing, or p
enables INPUT to
to complex busine

Formed in 1974, I
ding international
include over 100
most technically a

EUROPE
INPUT EUROPE B.V.
Empire House
414 Chiswick High Road
London W4 5TF
England
London 995-5397
Telex 896739

ITALY
PGP Sistema SRL
Milano
ga 36
2850

TATES, West Coast
Bayshore Boulevard,
California 94303
600

ATES, East Coast
za West-1
k, New Jersey 07662
471

ata Service Company, Ltd
ilding, No 12-7 Kita Aoyama
inato-Ku
0

A
stralia
ntre, 7-9 Merriwa Street
0, Gordon N.S.W. 2072
(02) 498-8199

BUSINESS MICRO COMPUTERS
U.K. DISTRIBUTION OPTIONS

SEPTEMBER 1979

INPUT

TABLE OF CONTENTS

TABLE OF CONTENTS

PAGE

LIST OF EXHIBITS

LIST OF EXHIBITS

I. INTRODUCTION

I. INTRODUCTION

- This report was commissioned by Philips Data Systems following presentations to Philips Business Equipment Division in London during July 1979.

- Discussions with Philips personnel in London were held to define the extent to which certain aspects of the distribution and marketing were to be investigated.

- Following this a letter (Appendix 1) was sent to Philips Data Systems detailing the levels of the study.

- Subsequently Philips Data Systems telexed its acceptance of the offer by which time INPUT was in a position to deliver its interim findings. (Exchange of telexes Appendix 2).

- An interim presentation report was delivered in London on 30th August 1979.

II. EXECUTIVE SUMMARY

II. EXECUTIVE SUMMARY

A. MARKET VALUES AND FORECASTS

- Values of micro computers for business use range between £500, for a stripped down computer without peripherals, and £5500 for a fully configured system including discette drives and output printer.

- Exhibit III-2.E presents the low value segment of the market (< £12.5K) and demonstrates that 30% of these units were marketed via indirect distribution (dealer distribution) methods in the U.K. during 1978. The value of this 30% was £250.9 MILLION. The third party channels involved included:

  - Specialist computer dealers
  - Office Product dealers
  - Computer service bureaux.

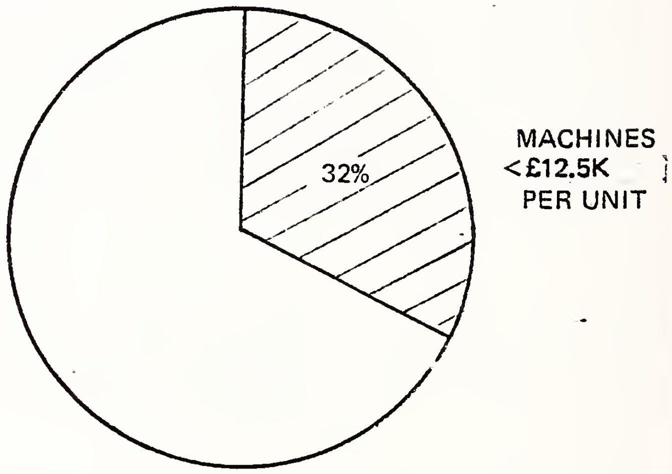
- Within the £50.9 MILLION segment which represents the third party distribution market, 13.5% of the value or £6.87 million was accounted for by BUSINESS MICRO COMPUTERS shipped to the end of 1978 - (see Exhibit III-3.E).

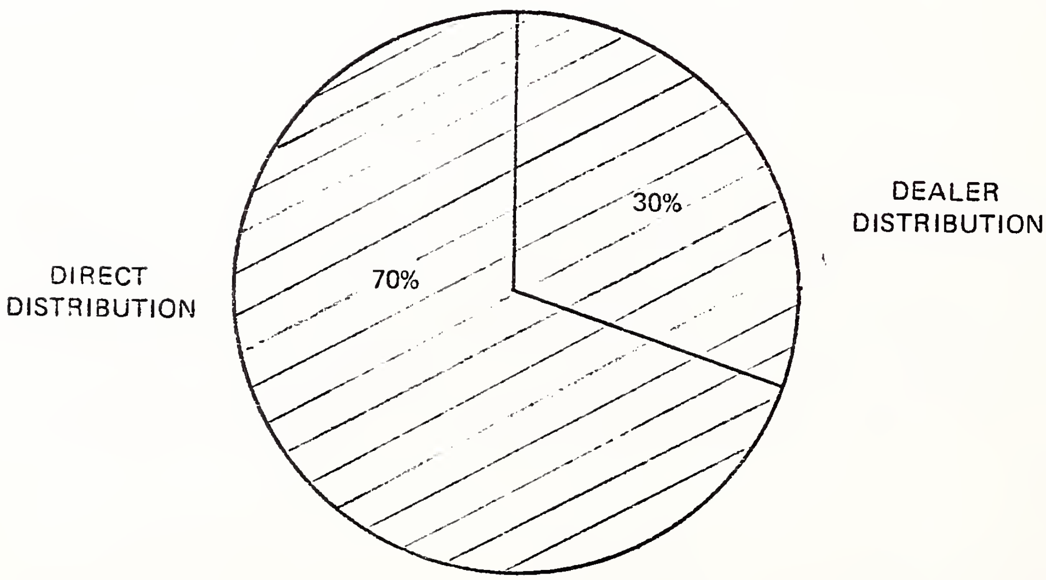
- Average values for business use are increasing as volume shipments increase by virtue of the growing user recognition that additional components are important. Whereas in 1976 - 1978 so called business users were content to operate their needs within the confines of the "screen and keyboard", users are now more demanding and vendors are recognising the need to offer peripheral packages.

- Two aspects of the growth of shipments exist. Firstly, gross shipments of micro computer products by all suppliers indicate phenomenal growth rates. Industry sources speak of monthly shipment figures approximating to a market total of 5,500 units. This indicates a current year shipment of 66,000 units to all market sectors including domestic.

MICRO COMPUTERS - UK DISTRIBUTION

SMALL COMPUTER PRODUCTS MARKET IN UK - SHIPMENTS 1978





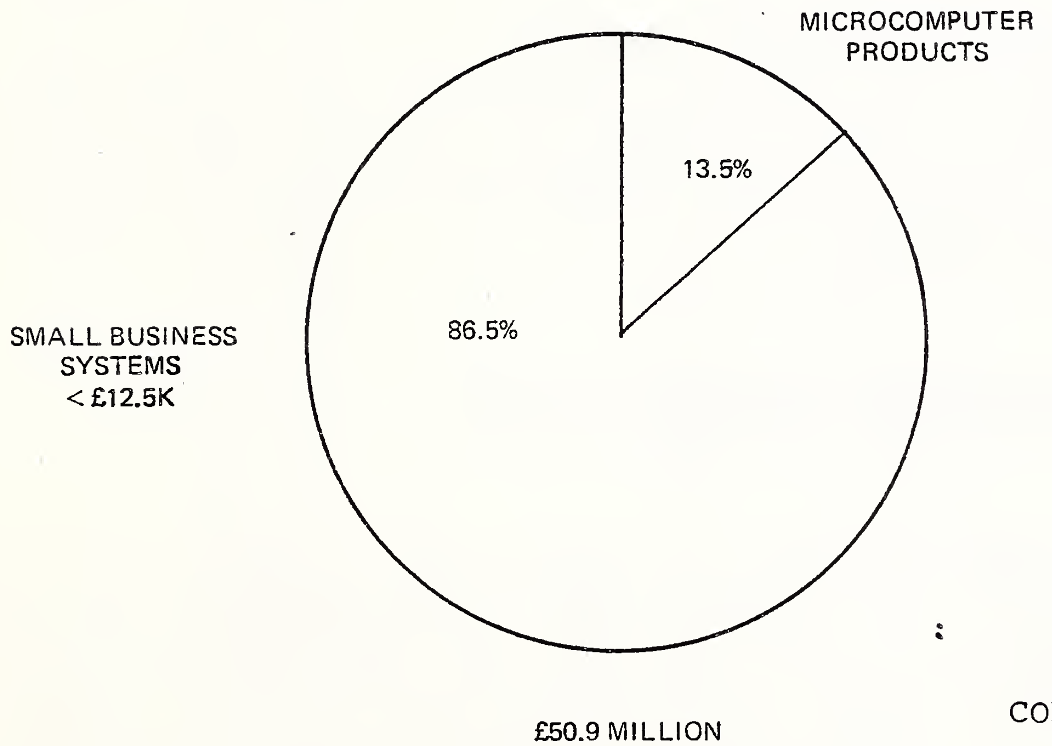
CONFIDENCE FACTOR

£169.6 MILLION

EXHIBIT III-2 E

MICRO COMPUTERS - UK DISTRIBUTION

SMALL COMPUTER PRODUCTS MARKET IN UK - SHIPMENTS 1978
DEALER/THIRD PARTY DISTRIBUTION:



CONFIDENCE FACTOR 7.0

EXHIBIT III-3 E

- Secondly, if we are considering the growth of shipments in the business market the will of the prime suppliers is not matched by the capacity of the dealers to satisfy user needs. For this reason, whilst interviews with dealers indicate that these respondents believe they are selling to business users, in fact very little use is actually being made of the units and often they are little more than expensive calculators.

- For these reasons the true business penetration is represented as a fraction of the actual market value. INPUT currently places market value of true business sector penetration in the area demonstrated by Exhibit III-4.E.

- The micro dealer will find the going tough if he sells on price alone in the teeth of competent "systems sales" approaches from traditional vendors. Not unnaturally, however, many first time users have been lured into the price trap by simplistic comparisons and their lack of awareness has left them with "expensive toys".

B. THE SUPPLIERS AND THEIR PRODUCTS

- Manufacturers of micro systems are beginning to embark seriously on targetting the small business (SB) segment. Companies offering upgraded systems targetting the business market are Texas, Tandy, Apple, and Commodore. Additionally, newer entrants include Compucorp, Cromemco, North Star, Ohio Scientific. A list of leading market competitors appears as Exhibit IV-1.E.

- From the few traditional small business system supplier companies actively using dealer distribution the general view seems to be that 30 dealers outlets in major centres throughout the UK is the best number to manage. In general, manufacturers still support the servicing of their own equipment but expect the outlet to support software.

MICRO COMPUTERS - UK DISTRIBUTION

FORECAST OF SHIPMENTS BY UNITS AND VALUE OF NON-DOMESTIC AND NON-INDUSTRIAL MICRO COMPUTERS

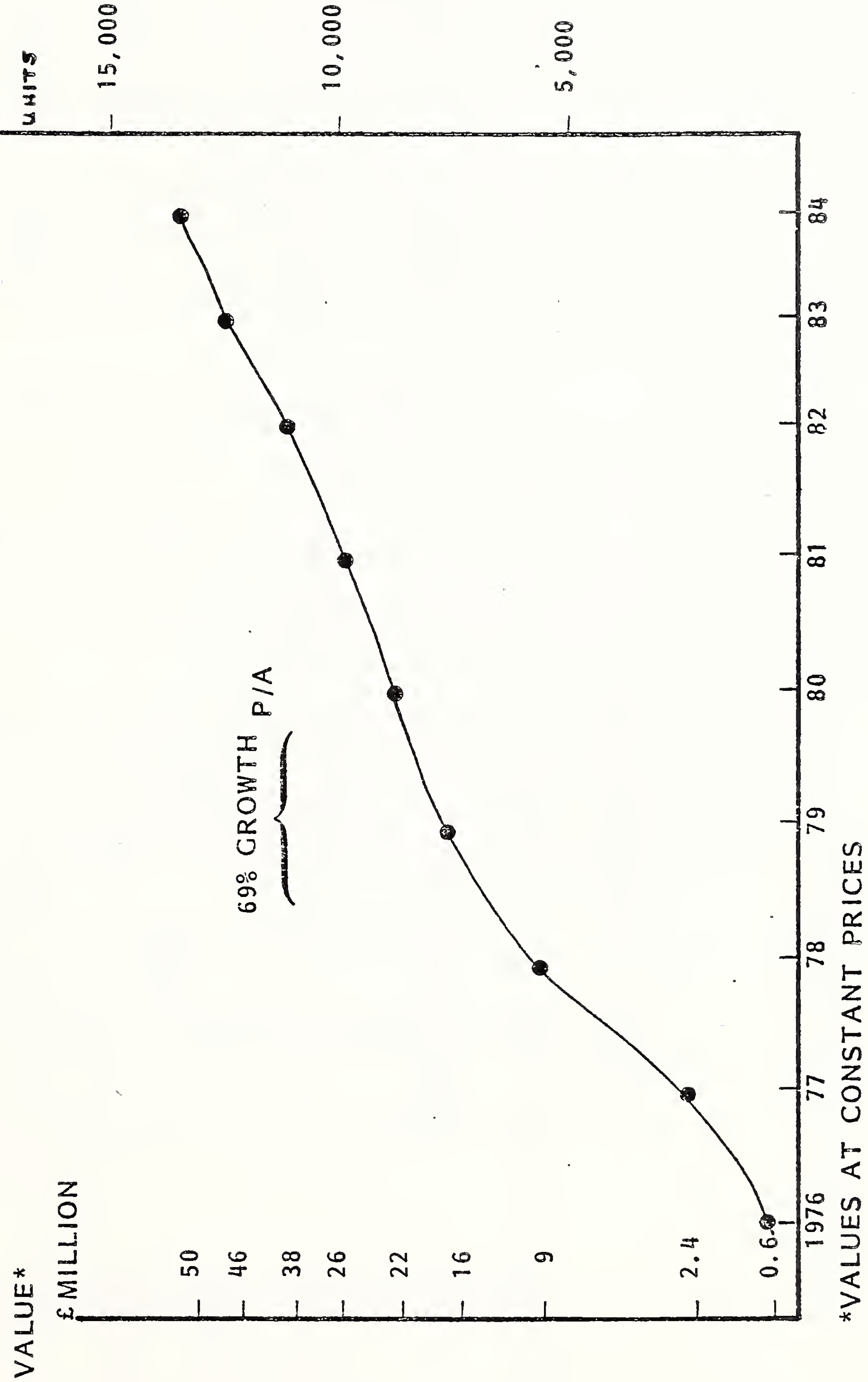


EXHIBIT III-4 E

MICRO COMPUTERS - UK DISTRIBUTION
PRINCIPAL PRODUCTS IN NON-DOMESTIC/MARKET

PRODUCT	MEMORY SIZE (K BYTES)	F/DISCS ? ( )	PRINTER CHOICE	APPLICATIONS AVAILABLE					AVERAGE £PRICE	BUSINESS INSTAL-LED BASE	NUMBER OF OUTLETS
				ACCTS.	STOCK	WP	PAY	+			
APPLE II	16-48	x (2)	x	x	x	x	x	x	2,250	1,250	27
PET I, II	4-32	x (1)	x	x	x	-	-	-	700	4,300	80
COMPELEC S.I.	4-64	x HD. (512MB)	x	x	x	x	x	x	4,500	420	12
COMPUCOLOR	8-32	x (150MB)	x	x	x	x	x	x	2,400	540	10
EXIDY SORCEROR	16-48	x (2)	LINE ONLY	x	x	x	x	x	1,000	300	20
ITT 2020*	16-48	x (2)	x	x	x	x	x	x	2,000	450	15
NORTH STAR HORIZON	16-56	1-4 FD	x	x	x	x	x	x	1,800	300	20
TANDY TRS 80	4-48	1-4 AND HD	x	x	x	x	x	x	-	3,500	132
RESEARCH MACHINES 380Z	4-64	x +HD	x	SCIENTIFIC AND EDUCATIONAL SIMULATION PACKAGES.					1,800	750	12

EXHIBIT IV-1 E

- As soon as the size and flexibility (and therefore cost) of a system reaches the level of a "true mini" or small business system, then the general feeling amongst traditional manufacturers is that the level of expertise needed to support the sales of such a system excludes office equipment dealers, although a number of them work in conjunction with software houses. Exhibit IV-3.E tracks the price/opportunity curve for a number of systems and shades the 3rd party dealer's operational area.

C. INDUSTRY PENETRATION OF BUSINESS MICROS

- In the context "business micros", no shipments to the domestic or home/-hobbyist market are considered. Exhibit V-1.E segments shipments up to July 1979. The total volume of shipments is rationalised in Section III.

- However, The Business Sector, (which includes professions, retail outlets, manufacturing companies departments of large companies, educational/scientific/research institutions and government establishments) is accountable for 52% of the market. Respondents claimed that the most important applications in this segment were:

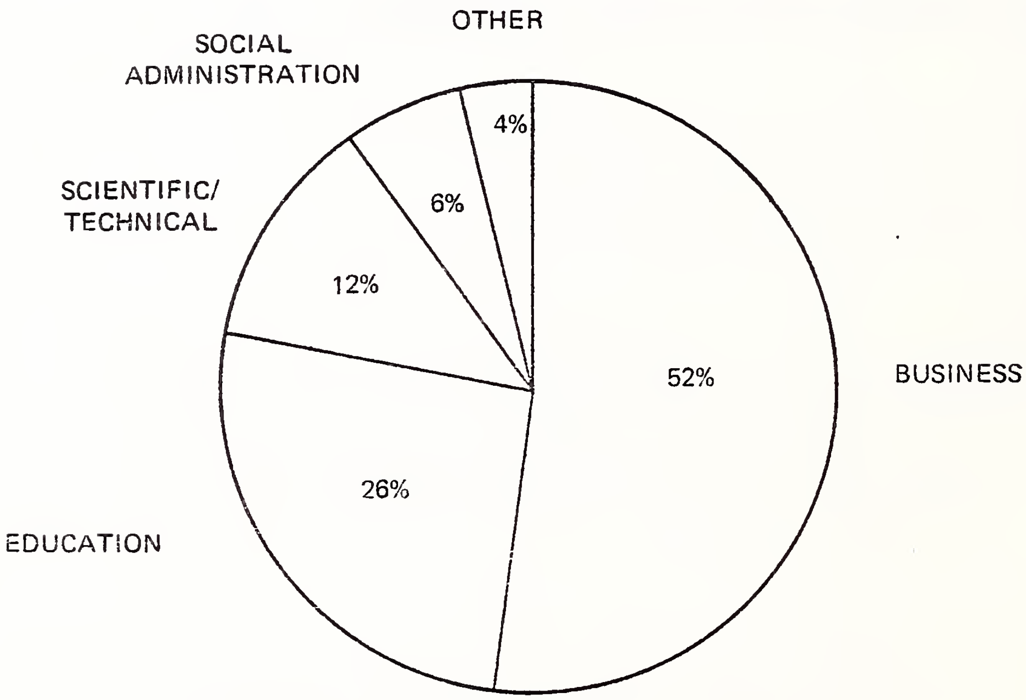
  - credit and stock control,
  - general accountancy including nominal and sales ledger,
  - payroll,
  - invoicing,
  - file management.

D. USER MOTIVATIONS AND SUPPORT CHARACTERISTICS

- Irrespective of the type of user interviewed, the prime consideration when evaluating a micro system currently was stated to be price i.e. whether the machines were economically justifiable.

MICRO COMPUTERS - UK DISTRIBUTION

DIVISION OF PLACEMENTS - NON-DOMESTIC MARKET - JUNE 1979
BY MARKET SECTOR*



11,620 INSTALLATIONS

*CONFIDENCE FACTOR-7

EXHIBIT V-1 E

- Some respondents believed that price would become decreasingly important as a consideration as the market embraces uninitiated users, who once convinced of the benefits of computing, will be looking for the resolution of a problem to enable them to use time more productively.

- 90% companies offer some form of credit or leasing facility. Rental only accounts for a very negligible % of revenue generated by the few respondents following this policy, and in no case exceeded 5%.

- Future motivations will almost certainly turn on support levels which dealers are able to offer. Amongst these are:

  - Installation help.
  - Implementation assistance.
  - Documentation.
  - Maintenance.

- At present 95% of respondents offer maintenance to clients in some form or other. If unable to offer maintenance themselves they refer clients to third party companies or have an agreement to subcontract.

E. APPLICATION SOFTWARE ASPECTS OF FUTURE VENDOR MOTIVATIONS

- Exhibit VI-1.E summarizes present microdealer attitudes to the provision of software and indicates possible trends in the future.

- Present manufacturers' software packages especially in the business sector are inadequate, unreliable and inappropriate.

- Micro specialist dealers believe themselves to be well placed to provide reliable application software packages to an expanding small business market. Software development is the major key to success in the small business market. Micro specialists/software houses are aware of this and believe that the problems manufacturers are currently facing vis-a-vis software support would be to their advantage.

MICRO COMPUTERS - UK DISTRIBUTION

SPECIALIST COMPUTER STORES
SOFTWARE ASPECTS

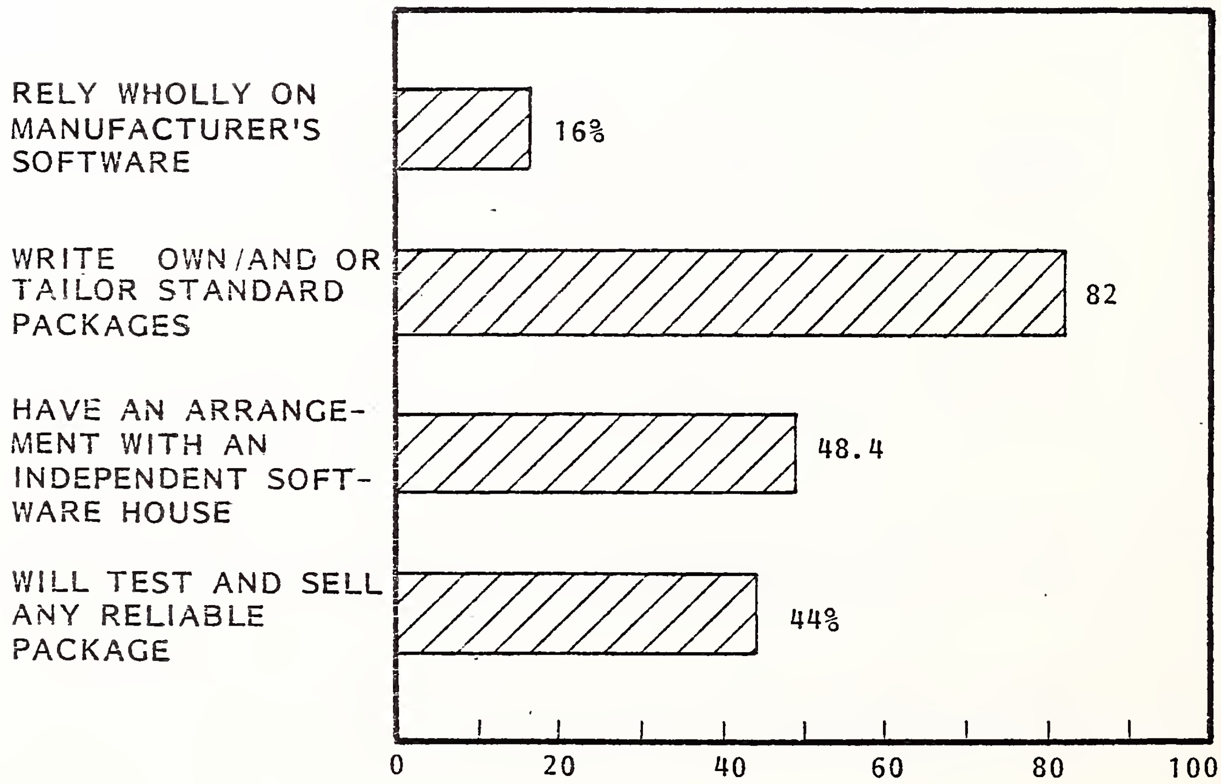


EXHIBIT VI-1 E

- Cost is an equally important factor. At present most first time users are unaware of the prohibitive software development overhead, especially in the case of customized software.

F. VENDOR ATTITUDES TO THE PROVISION OF TURNKEY SOLUTIONS

- Vendors need to offer considerable back up support. One method of ensuring that the user pays for these support costs is to "Package the Solution" as a turnkey product.

- Vendor attitudes to turnkey vary and are summarised as Exhibit VI-2.E.

G. THE ALTERNATIVE DISTRIBUTION CHANNELS

- Exhibit VII-1.E presents the available channels of distribution in the U.K. The total universe for micro computer distribution is currently 27000 outlets, ranging from non-specialist outlets (these include hi-fi stores, audio stores, etc.), which account for 24650 (91.23% total available universe) through to specialist computer stores (400 = 1.5%) total universe. The exhibit also features the inverse nature of market penetration demonstrating that the relatively small number of micro specialists currently dominates installations.

H. THE SPECIALIST COMPUTER STORES (micro computer stores)

- At the top of the current distribution pyramid (see Exhibit VII-1.E) are specialist micro computer stores currently estimated at 400 outlets, but whose number is steadily increasing due to the following reasons:

  - The segment is dominated by entrepreneurial types who see business opportunities available in present "product driven" dynamic market.

MICRO COMPUTER SPECIALISTS - TURNKEY ASPECTS

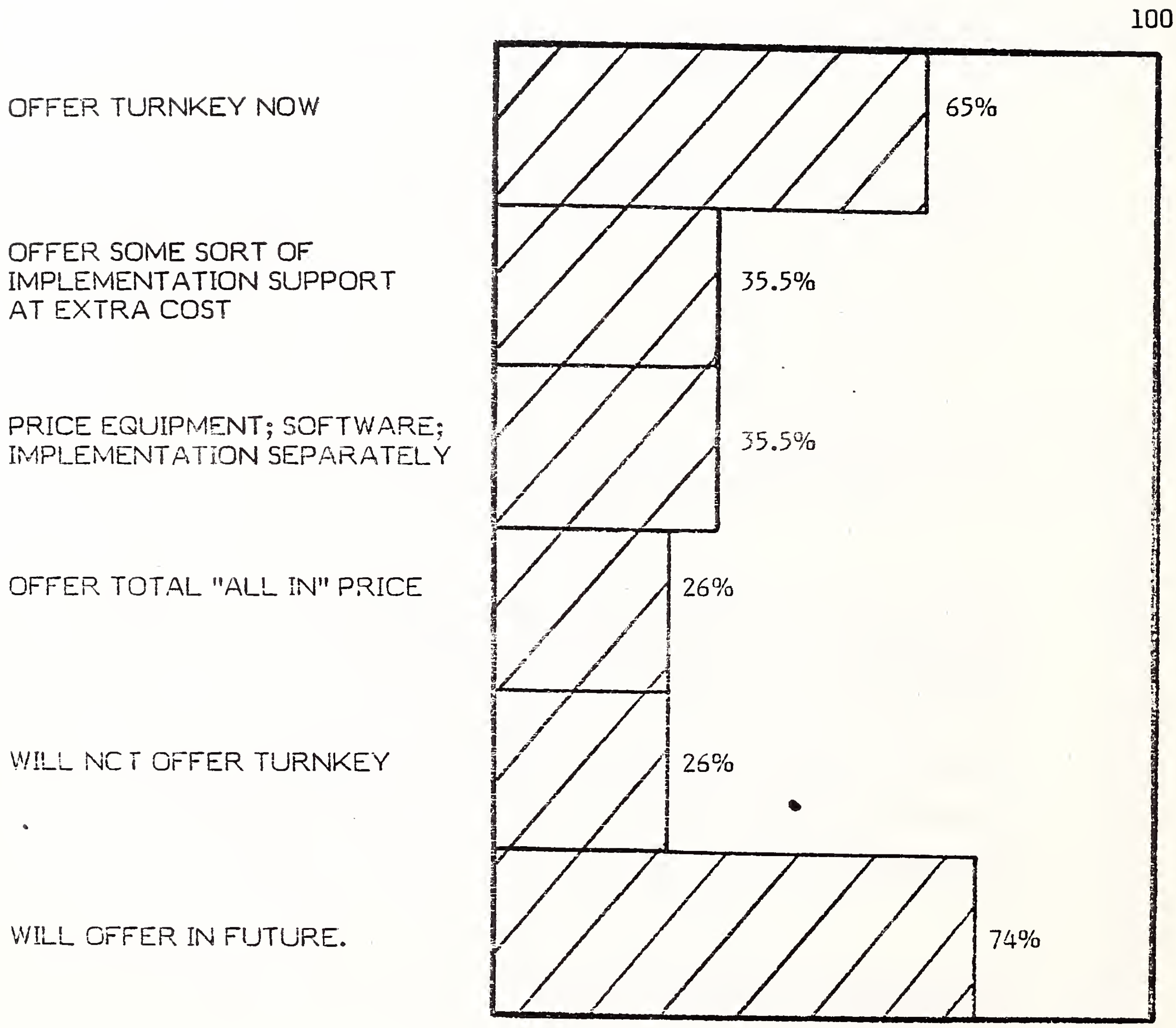
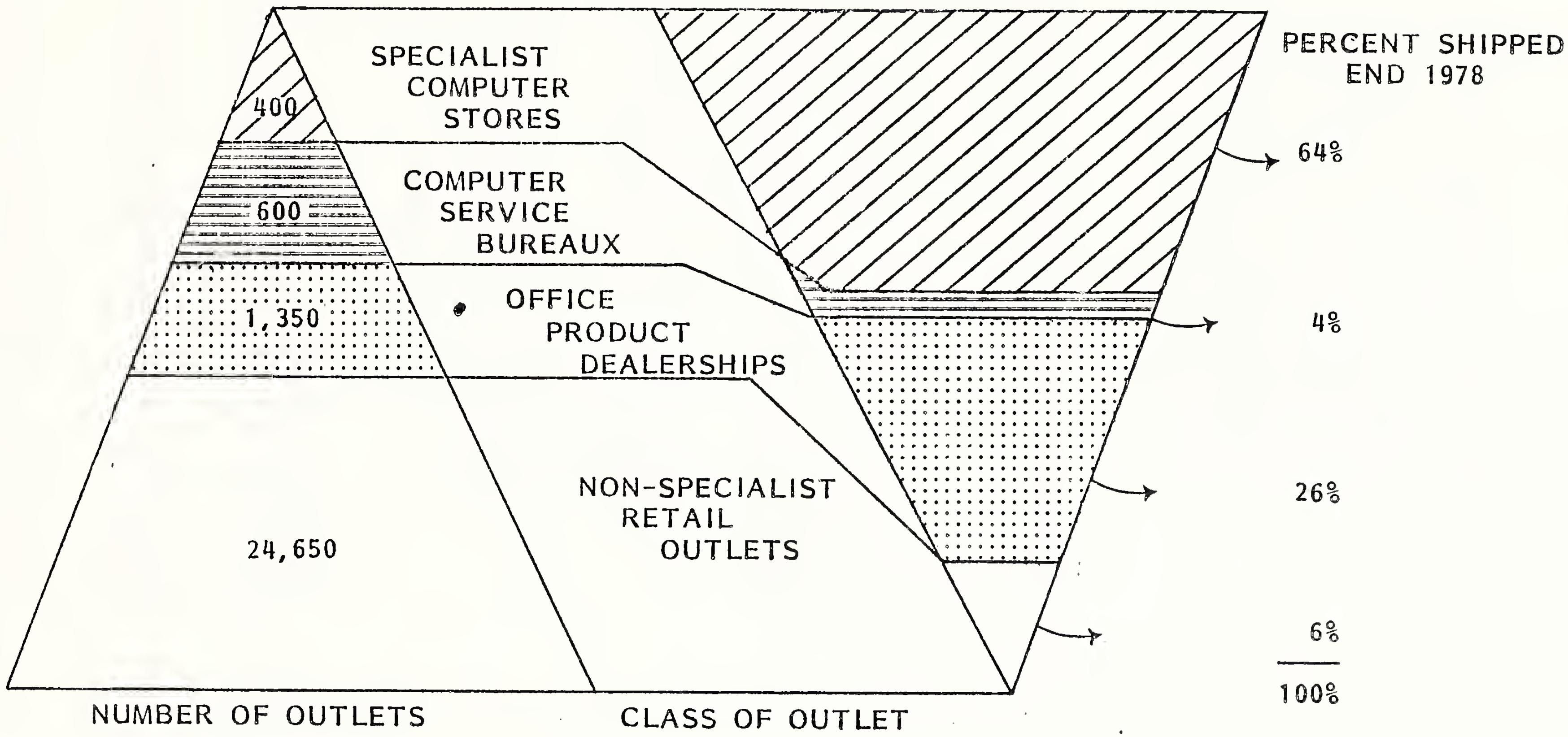


EXHIBIT VI-2 E

EXHIBIT VII-1 F

MICRO COMPUTERS - UK DISTRIBUTION
INVERSE RELATIONSHIP EXISTS BETWEEN DISTRIBUTION VOLUME AND TYPE OF ORGANISATION



- They have the necessary expertise and computing knowedge to be able to demonstrate the capabilities of a small computer.
- They are typically small businesses which so far have small overheads.
- They understand that software is the key to future market, and since many have this necessary skill, they can be successful. However, shake out will inevitably occur and mortality is likely to be high because cash flow problems are beginning to emerge.

I. COMPUTER SERVICE BUREAUX AND SOFTWARE HOUSES

- Computer service Bureaux and software houses are becoming increasingly involved in micro market driven by their pre-eminence in software. Although to date they have only accounted for 4% of micros distributed in UK this is likely to increase due to the following factors:

  - they have necessary expertise in software support/programming enabling them to target first time users and cope with related problems.
  - They have the necessary flexibility to understand FT user needs, and can produce user tailored software.
  - They have local knowledge.

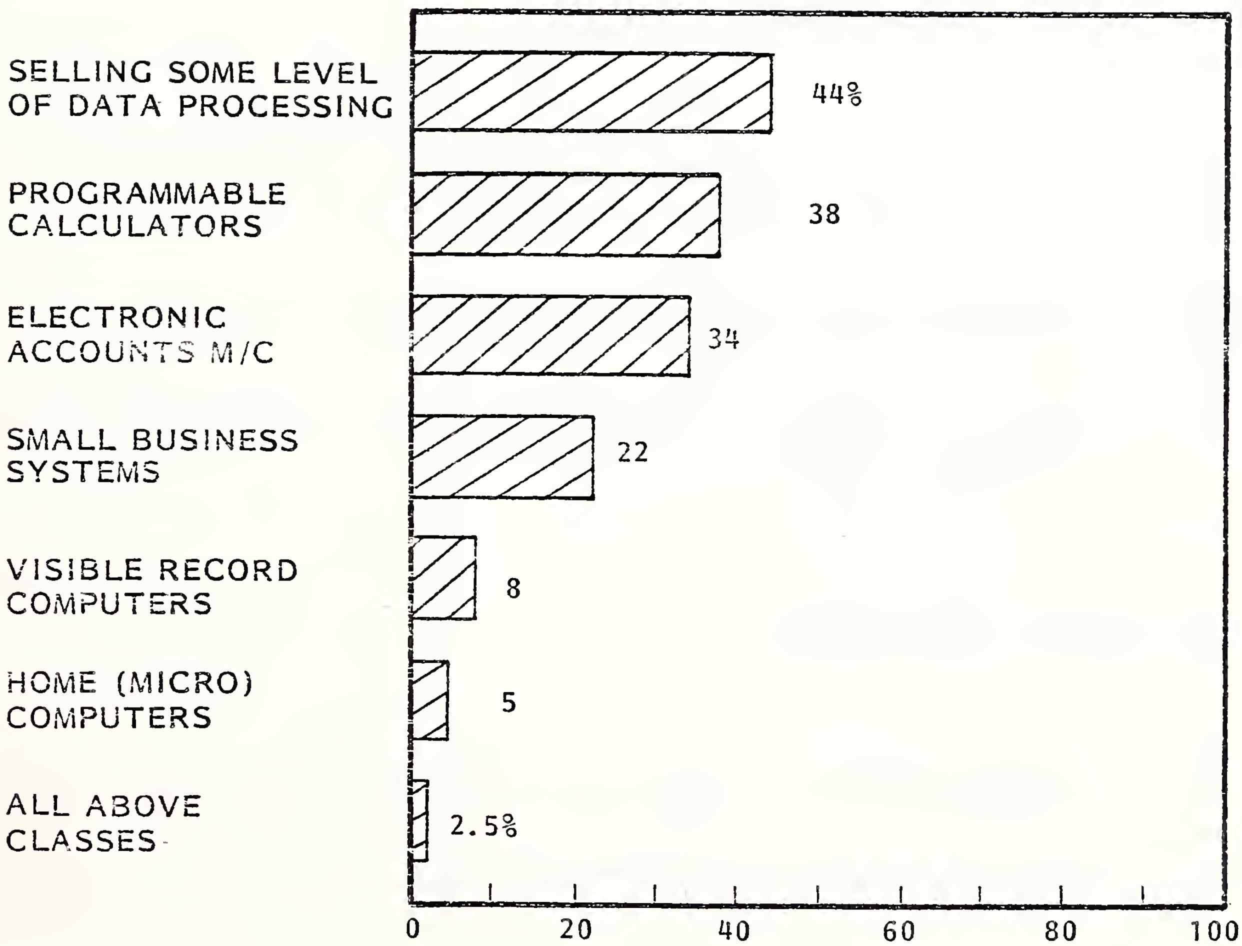
J. THE OFFICE PRODUCT DEALERSHIPS

- The major supplier organisations regularly sell to between 1100 and 1300 outlets.

- The final operational Universe of office product outlets is 1350 outlets.

MICRO COMPUTERS - UK DISTRIBUTION

OFFICE PRODUCT DEALERSHIPS OFFERING SOME LEVEL OF DATA PROCESSING



(SAMPLE = 464 RESPONSES OR 34% OF UNIVERSE)

EXHIBIT VII-15 E

OFFICE PRODUCT DISTRIBUTION OF COMPUTER PRODUCT

- 44% of the total 464 outlets sampled is currently offering some kind of computer product. Within this total, (204 outlets) the various levels of product coverage are broken down and presented in Exhibit VII-16.E.

- The INPUT directory of OFFICE PRODUCT DEALERSHIPS identifies those establishments who have reached this level of development and who could therefore be ready to take over a new role.

K. NON-SPECIALIST RETAIL OUTLETS

- Non-specialist outlets account for over 90% of available outlets, to date they are only accountable for 6% of total micro sales.

- Currently many of these outlets act solely as hardware vendors.

- Many are not computer oriented although some do possess hardware maintenance/support capability.

L. TV RENTAL STORES

- Leading Organisations such as Granada, DER, British Relay, Visionhire, Redifusion and Radio Rentals have approximately 1,500 high street offices. These organisations are not to be overlooked as a viable distribution network.

M. RATINGS OF ALTERNATIVE CHANNELS

- The four categories of outlets are presented in tabular form with a grading system applied against each of fourteen categories (see Exhibit VII-17.E).

EXHIBIT VII-17 E

MICRO-COMPUTERS - UK DISTRIBUTION

OUTLETS' RATINGS				
TYPE OF ORGANISATION / QUALITIES	OFFICE PRODUCT DEALERS	SOFTWARE/ SYSTEMS HOUSES	SPECIALIZED MICRO-COMPUTER DEALERS	NON-SPECIALIST RETAIL OUTLETS
NUMBER OF OUTLETS	● ● ● ●	● ●	● ●	● ● ● ● ●
CONTACT WITH BUSINESS MARKET	● ● ● ●	● ● ● ●	● ● ●	● ●
ADAPTABILITY TO PROSPECTIVE BUSINESS USER NEEDS	● ● ●	● ● ● ●	● ● ● ●	● ●
DATA PROCESSING OFFERINGS	● ● ●	● ● ● ●	● ● ● ● ●	● ●
ENGINEERING & HARD WARE MAINTENANCE BACKGROUND	● ● ●	● ● ●	● ● ● ●	●
EXPERIENCE IN SELLING SYSTEMS PRODUCTS	● ●	● ● ● ●	● ● ●	●
EXPERIENCE IN TURNKEY SYSTEMS	●	● ● ● ●	● ● ●	●
IN-HOUSE SOFTWARE PROGRAMMERS	●	● ● ● ●	● ● ●	●
MAINTENANCE CONTRACT FACILITIES	● ● ●	● ● ●	● ● ● ●	●
APPLICATION PACKAGES EXPERTISE	●	● ● ● ●	● ● ● ● ●	● ●
ABILITY TO TAILOR SOFTWARE	●	● ● ● ● ●	● ● ● ●	●
TECHNICAL BACK-UP	● ●	● ● ● ●	● ● ● ●	●
DEMONSTRATION FACILITIES	● ● ● ●	● ●	● ● ●	●
PROVISION OF CUSTOMER EDUCATION	● ●	● ● ●	● ● ● ●	●

- At this stage, the lack of support facilities available through prime facie excellent openings, like Office Product dealers, is the major area of short-coming. It is clear that once this aspect is rationalised and developed, then both Office Product outlets and Non specialist retail operations will have a far better chance of penetrating the market.

N. CONCLUSIONS AND RECOMMENDATIONS

- The keys to successful distribution of business micro computer products are SOFTWARE SUPPORT and DEVELOPMENT and visible MAINTENANCE.

- Such facilities must be visible to the user and ruthlessly featured in sales campaigns from media advertising stage through to user implementation and beyond.

- Target enterprise size should be in the 10 - 100 employee size group as it is in this area that repeat business should be available in a narrow time frame.

- Distribution and application development of Philips label products should be on two levels:

    (i) - Regional Distributors - appointed direct by Philips (no more than 30).

    - Area dealers appointed by distributors with a responsibility via the Distributors (up to 900).

    (ii) - Central Software Support will develop application software for regional distributors to disseminate.

    - Regional Software support staff will be responsible for field and company liaison work between the regional distributors and Philips.

- At the same time, to achieve penetration on two other fronts the following can be considered.

  - OEM operation on a vertical market basis (e.g. EDUCATIONAL MARKET) whereby an alternative brand is directed to a given market with attendant application support.

  - OEM operation on a horizontal basis via TV distributors or non specialist houses. Alternative brand is essential to avoid market conflict.

- In either of the above cases software support is an advisable option available to the OEM Purchaser - but not a mandate. Exhibit VIII-1.E summarises these proposals.

- As an alternative to finding its own software development operation for micros Philips can elect to appoint a bureau in a supporting role in a given area. Indeed, encouragement of bureaux to co-operate with Philips on a wide scale should be given careful consideration.

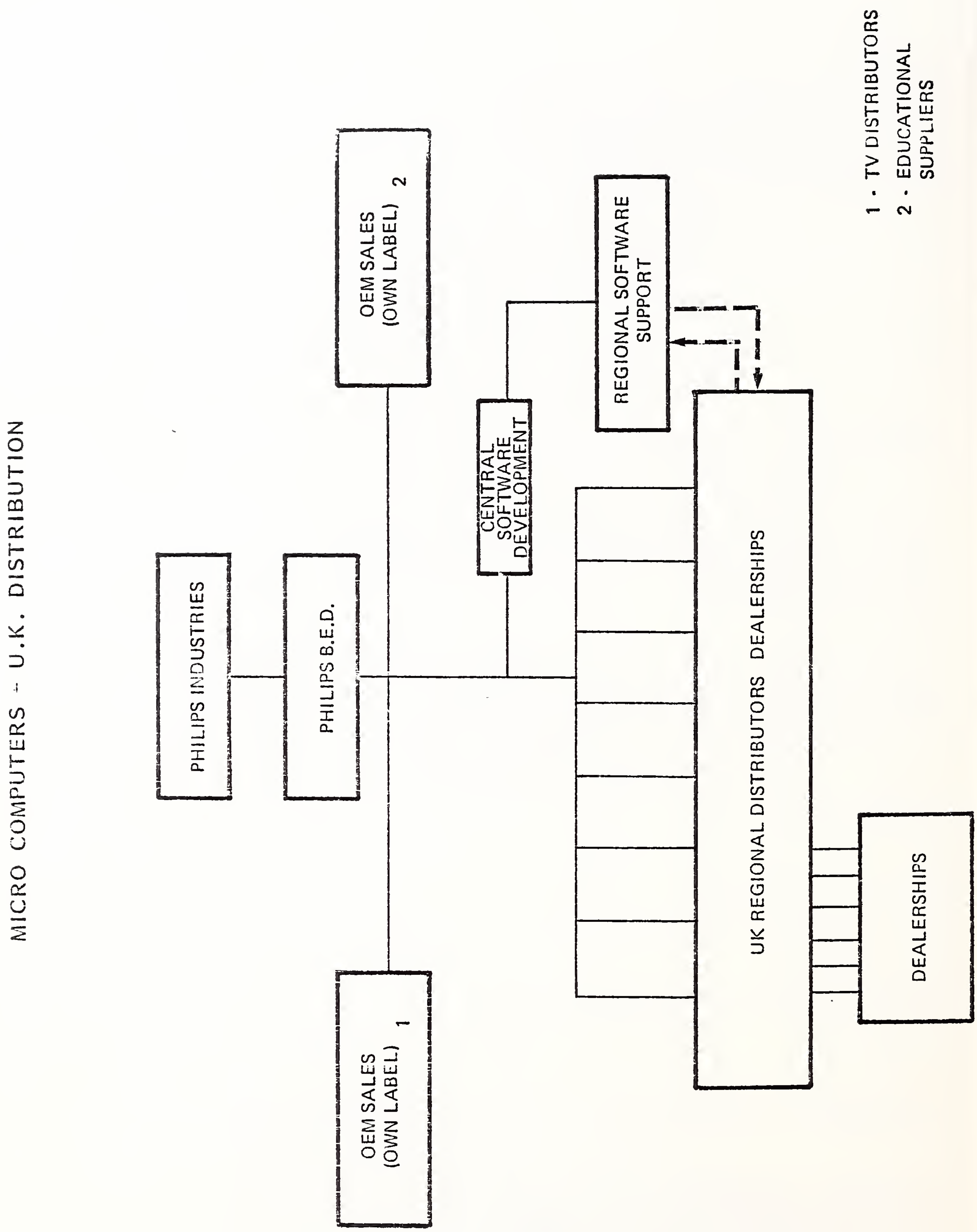


EXHIBIT VIII-1E

III. MARKET VALUES AND FORECASTS

III. MARKET VALUES AND FORECASTS

- The analysis of business micro computer markets in the U.K. is presented as a sub-set of information reduced from the total market for SMALL COMPUTER PRODUCTS.

- Exhibit III-1 presents the market size as assessed by value of shipments to the end of 1978.

- The total market at £530 million is divided by value into three principal segments:

  - machines £ 25K - £100K unit value
  - machines £12.5K - £ 25K unit value
  - machines below £12.5K unit value.

- It is within the latter segment (<£12.5 unit value) that the business micro market exists.

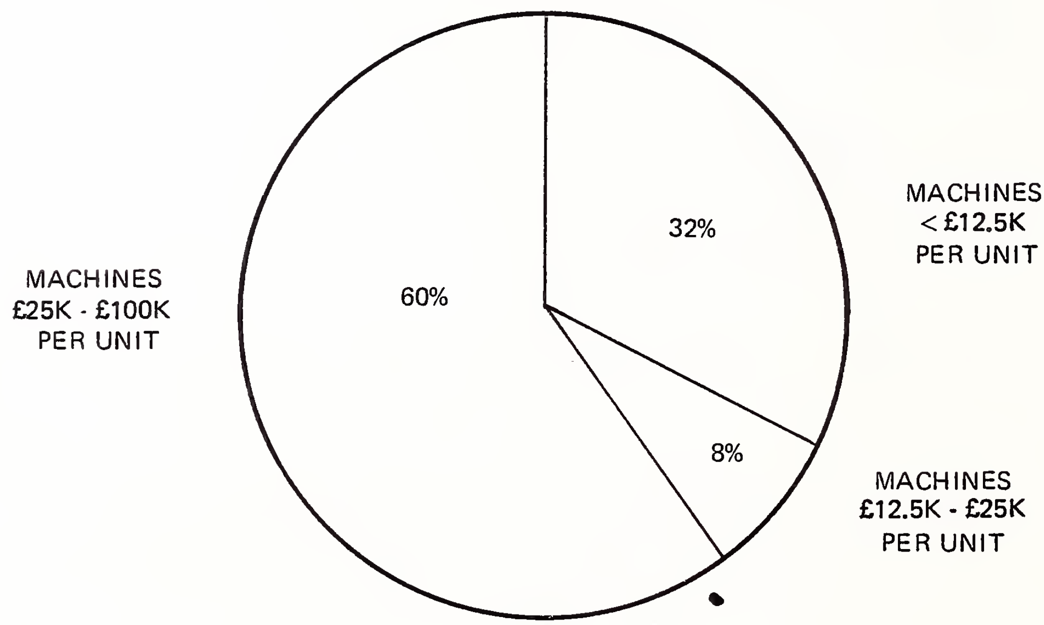
- Values of micro computers for business use range between £500, for a stripped down computer without peripherals, and £5500 for a fully configured system including discette drives and output printer.

- Exhibit III-2 presents the low value segment of the market (<£12.5K) and demonstrates that 30% of these units were marketed via indirect distribution (dealer distribution) methods in the U.K. during 1978. The value of this 30% was £250.9 MILLION. The third party channels involved included:

  - Specialist computer dealers
  - Office Product dealers
  - Computer service bureaux.

MICRO COMPUTERS - UK DISTRIBUTION

SMALL COMPUTER PRODUCTS MARKET IN UK - SHIPMENTS 1978



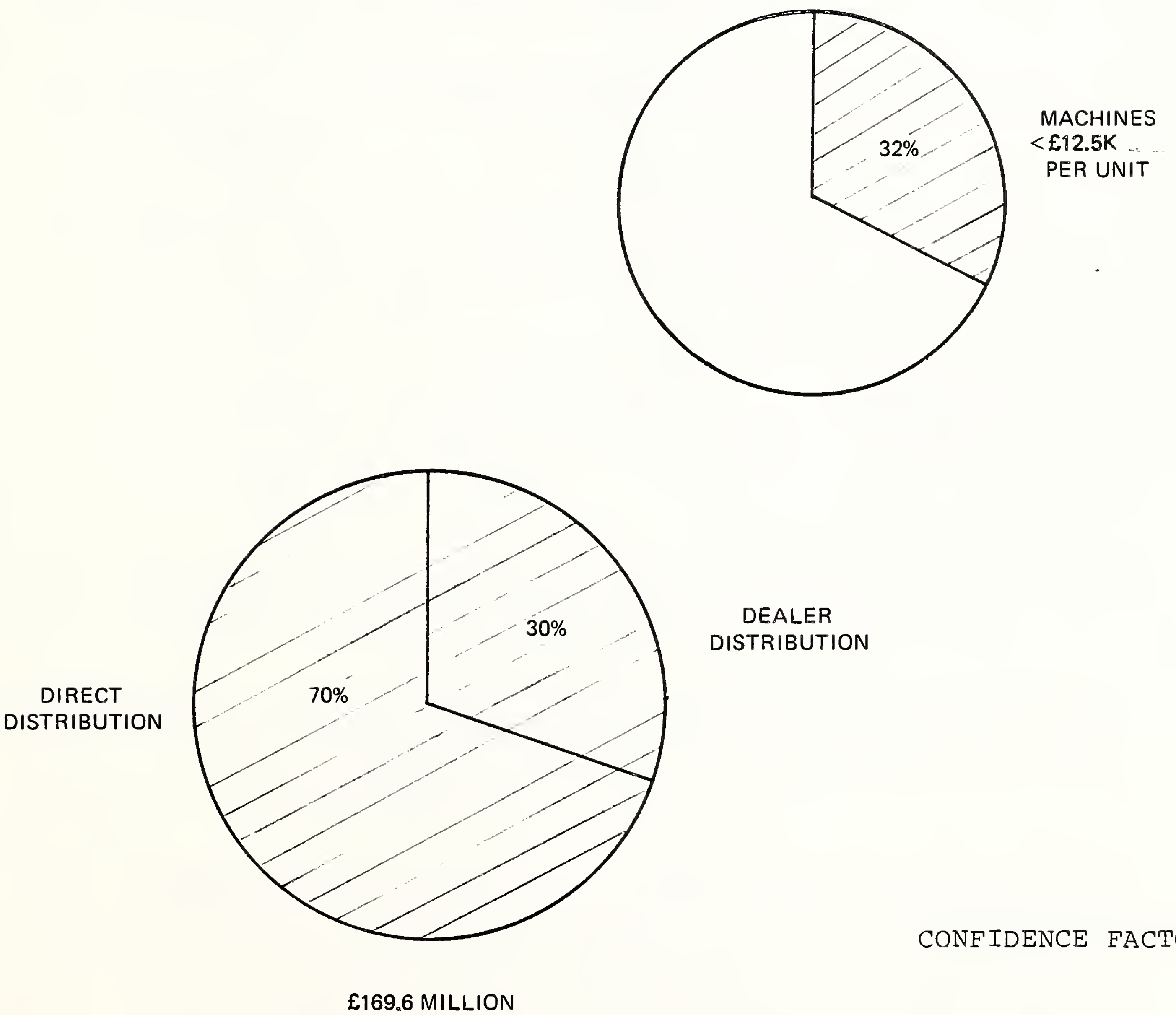
£530 MILLION

CONFIDENCE FACTOR 7.5

EXHIBIT III-1

MICRO COMPUTERS - UK DISTRIBUTION

SMALL COMPUTER PRODUCTS MARKET IN UK - SHIPMENTS 1978

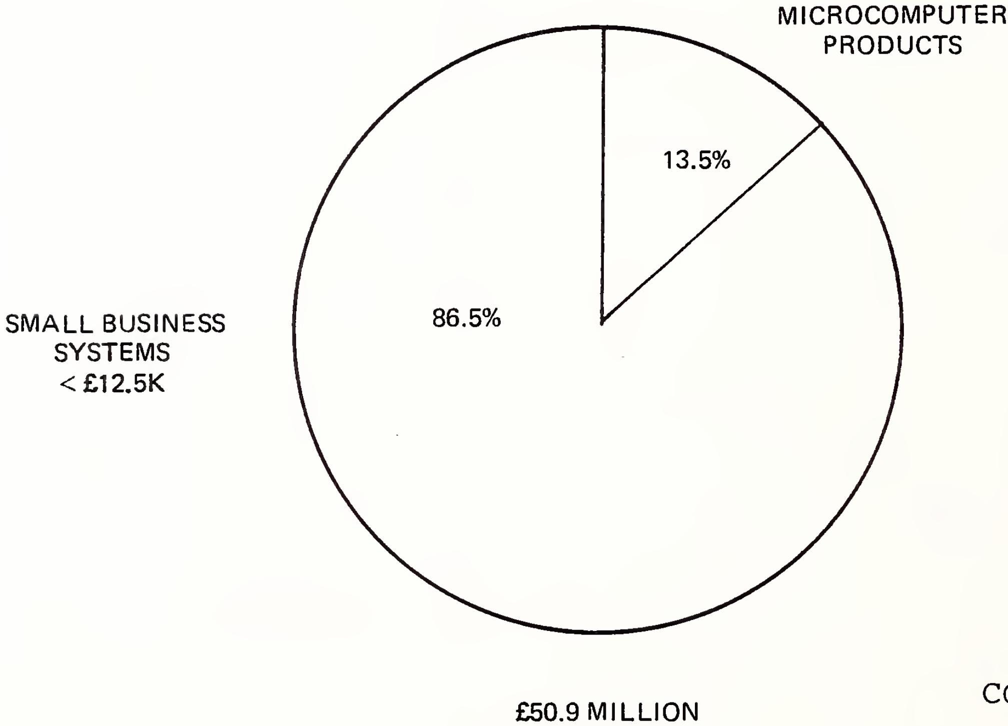


CONFIDENCE FACTOR 7.5

EXHIBIT III-2

MICRO COMPUTERS - UK DISTRIBUTION

SMALL COMPUTER PRODUCTS MARKET IN UK - SHIPMENTS 1978
DEALER/THIRD PARTY DISTRIBUTION:



CONFIDENCE FACTOR

EXHIBIT III-3

- The balance of 70% (£118.7 MILLION) was divided between the leading manufacturers including: Philips, Olivetti, Texas, Hewlett Packard etc.

- Within the £50.9 MILLION segment which represents the third party distribution market, 13.5% of the value or £6.87 million was accounted for by BUSINESS MICRO COMPUTERS shipped to the end of 1978 - (see Exhibit III-3).

A. AVERAGE VALUES OF MICRO COMPUTER UNITS IN BUSINESS MARKET

- Before determining the average value of a shipment it is important to decide how a user is defined. In the business market it has been considered important to differentiate between:

  - Those users employing micros as little more than calculating aids.
  - Those users employing micros as a component of a genuine business system.

- There are two factors which have combined to prevent users from developing micros as business tools in the accepted sense of the term. These are:

  - The lack of competent and easily understandable application software.
  - The fact that dealers have little time to offer implementation advice - or Turnkey operations.

- Average values for business use are increasing as volume shipments increase by virtue of the growing user recognition that additional components are important. Whereas in 1976 - 1978 so called business users were content to operate their needs within the confines of the "screen and keyboard", users are now more demanding and vendors are recognising the need to offer peripheral packages.

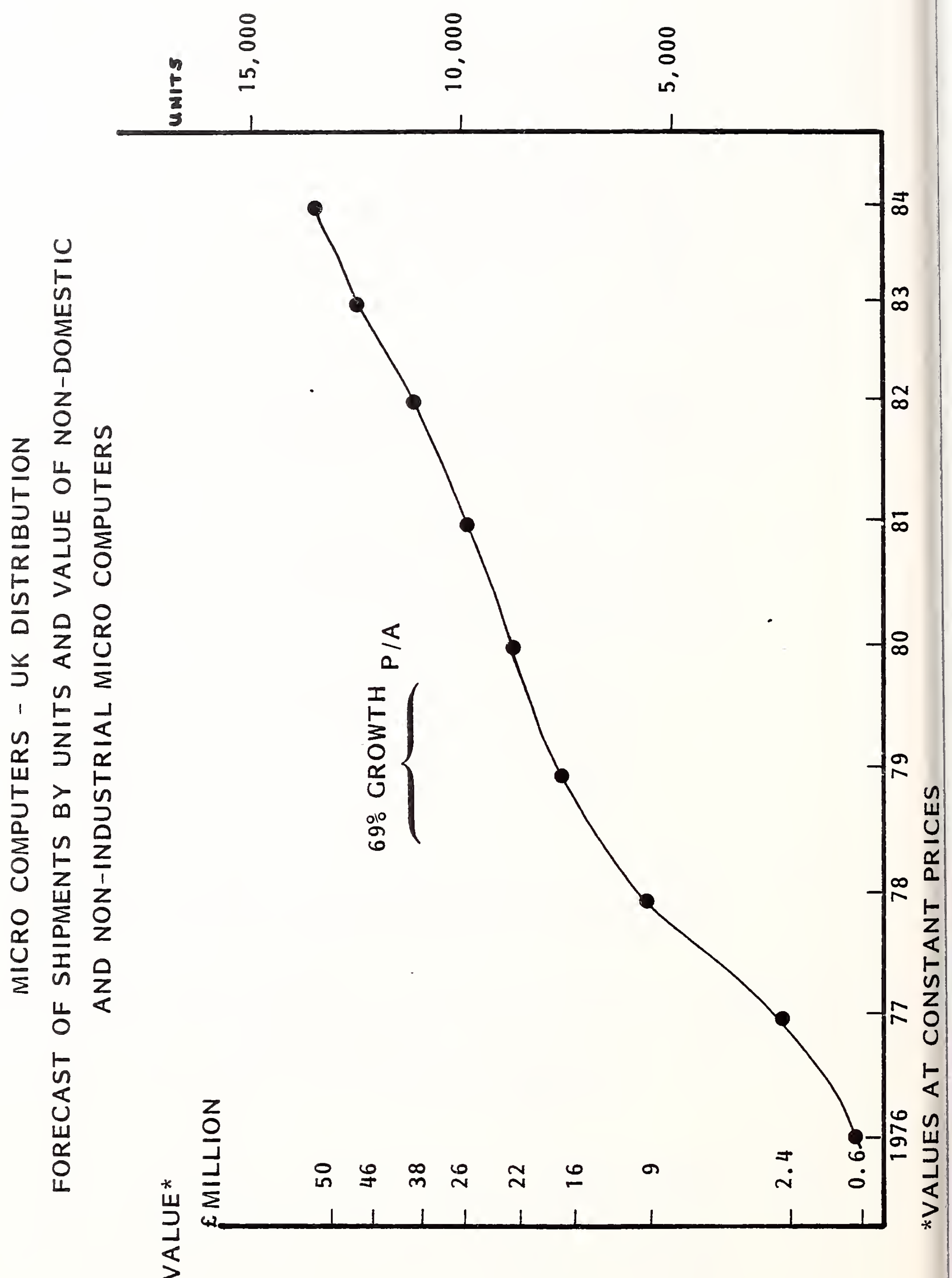


EXHIBIT III-4

- Two aspects of the growth of shipments exist. Firstly, gross shipments of micro computer products by all suppliers indicate phenomenal growth rates. Industry sources including Commodore Business Machines and ITT speak of monthly shipment figures approximating to a market total of 5,500 units. This indicates a current year shipment of 66,000 units to all market sectors including domestic.

- Secondly, if we are considering the growth of shipments in the business market the will of the prime suppliers is not matched by the capacity of the dealers to satisfy user needs. There is no doubt that machines are available but, as mentioned, support is currently lagging behind. For this reason, whilst interviews with dealers indicate that these respondents believe they are selling to business users, in fact very little use is actually being made of the units and often they are little more than expensive calculators.

- For these reasons the true business penetration is represented as a fraction of the actual market value. INPUT currently places market value of true business sector penetration in the area demonstrated by Exhibit III-4. This shows a growth rate between 1978/80 of 69% as compared with the total industry growth rate of 400% +. Competent support and software opportunities will enhance the forecast, but at current levels, we do not see more than 15000 fully configured systems being shipped per annum until after 1984.

- It can be seen therefore that price is not necessarily the problem. The micro dealer will find the going tough if he sells on price alone in the teeth of competent "systems sales" approaches from traditional vendors. Not unnaturally, however, many first time users have been lured into the price trap by simplistic comparisons and their lack of awareness has left them with "expensive toys".

IV. THE SUPPLIERS AND THEIR PRODUCTS

IV. THE SUPPLIERS AND THEIR PRODUCTS

- Manufacturers of micro systems are beginning to embark seriously on targetting the small business (SB) segment. Companies offering upgraded systems targetting the business market are Texas, Tandy, Apple, and Commodore. Additionally, newer entrants include Compucorp, Cromemco, North Star, Ohio Scientific. A list of leading market competitors appears as Exhibit IV-1.

- Prices range between £700 (PET) and £4,500 for a COMPELEC S.1.

- As a general rule, the more expensive the unit sale, the better configured and supported it will be. An example of this is the Tandy TRS 80.

A. TANDY CORPORATION BILSTON ROAD WEDNESBURY

- Tandy Corporation is a serious contender in the micro computer market. There are 136 Tandy Stores in the UK. 111 of these are Company owned and have access to the computer products. Marketing is controlled from the Bilston Head Office as is the national service operation. There are no Franchise stores in the UK but there are 25 dealer stores. Dealer stores are those electrical and hi-fi retailers which specialise in handling a non-exclusive stock range of TANDY products. So far, although they have access to the TRS 80 computer range, no dealer stores have placed any units. Marketing is divided into 8 regions each of which has a field sales manager who is DP trained and who supports technically.

- Tandy is credited with about 32% of the micro computer market having installed 5800 units since introduction. The majority of Tandy's installations are in the commercial sector. Placements are estimated to divide as follows:

MICRO COMPUTERS - UK DISTRIBUTION
PRINCIPAL PRODUCTS IN NON-DOMESTIC/MARKET

PRODUCT	MEMORY SIZE (K BYTES)	F/DISCS ? ( )	PRINTER CHOICE	APPLICATIONS AVAILABLE					AVERAGE £PRICE	BUSINESS INSTAL-LED BASE	NUMBER OF OUTLETS
				ACCTS.	STOCK	WP	PAY	+			
APPLE II	16-48	x (2)	x	x	x	x	x	x	2,250	1,250	27
PET I, II	4-32	x (1)	x	x	x	-	-	-	700	4,300	80
COMPELEC S.I.	4-64	x HD. (512MB)	x	x	x	x	x	x	4,500	420	12
COMPUCOLOR	8-32	x (150MB)	x	x	x	x	x	x	2,400	540	10
EXIDY SORCEROR	16-48	x (2)	LINE ONLY	x	x	x	x	x	1,000	300	20
ITT 2020*	16-48	x (2)	x	x	x	x	x	x	2,000	450	15
NORTH STAR HORIZON	16-56	1-4 FD	x	x	x	x	x	x	1,800	300	20
TANDY TRS 80	4-48	1-4 AND HD	x	x	x	x	x	x	-	3,500	132
RESEARCH MACHINES 380Z	4-64	x +HD	x	SCIENTIFIC AND EDUCATIONAL SIMULATION PACKAGES.					1,800	750	12

EXHIBIT IV-1

small commercial applications	85%
retail ("one man businesses")	10%
hobby market	5%

- It is interesting to note that Tandy is directing the majority of its effort at the small commercial establishment market and classifies this as organisations having a turnover of between £500,000 and £750,000 per annum.

- During 1979 Tandy plans to engage and train a group of 20 mobile engineers to support the company's installations. Currently, most service is handled via Wednesbury in the Birmingham area and no sub contracting is carried on. Tandy now claims a 48 hour National response time. Maintenance Contracts are being organised at the moment and by July/August the Company intends to offer an annual contract which will cost 15% of equipment capital cost.

- An interesting departure for Tandy is that the organisation has commenced marketing of the £7500 twin discette drive ADDS system 75. This unit from Applied Digital Data Systems Ltd, is imported for the US. In addition to Tandy, ADDS have 6 software houses to spearhead the marketing operation.

- Tandy has revamped the TRS - 80 microsystem aimed at the busines market. Known as TRS - 80 model II, it is unlikely to be available in the U.K. until February 1980. The company will offer a range of general purpose programs for the system. One version of model II to be marketed, will be equipped with 64 K bytes of memory and 3 floppy disk drives costing £4½ - £5½ K. It is significant to note that these machines will <u>NOT</u> be marketed through their complete network of Audio Equipment stores, but via <u>8 specialist</u> outlets around the country controlled by the regional managers and dedicated to selling and supporting both model I and II of the TRS - 80 range. Other stores with the same function will be opening throughout Europe.

- Because Tandy makes and distributes its own product the company has been included in the SPECIALIST DISTRIBUTORS Category for analysis purposes.

B. COMMODORE BUSINESS MACHINES

- By pursuing a dextrous flexible policy according to market demands Commodore Business Machines (CBM) has succeded in maintaining the position of market leader in the micro electronics products market despite increasing competition from traditional and new entrants. This is also due to the fact that the company is virtually self sufficient for the provision of components, hence eliminating dependency on third party suppliers.

- The Commodore Pet originally conceived as a home computer product has fast been achieving sales in both home and business market. The machine has been recently upgraded and "reconceived" to target the SB market.

- Already 5,500 units have been installed in the UK through 80 dealers nationwide and significantly witnesses the departure from the "toys/games" concept towards the SB market.

- The new comprehensive business system (retails at £2½K) is better suited to the business environment and displays the following characteristics:

  - full size typewriter keyboard,
  - improved documentation,
  - new disc system,
  - fast BASIC,
  - a wide range of software and the prospect of good support, an aspect much neglected by vendors and dealers.

- This improved software/support aspect has been reinforced through the introduction of an "endorsement scheme" offering an "officially approved by Commodore" sticker to dealers - to ensure the user has a guide to the suitability of third party peripherals, software and maintenance quality.

- A new range of improved business software is being introduced by PETSOFT, a division of the ACT Midlands based group - the first two suites are sales accounting and purchase accounting - each purchase handles 200 accounts and 800 transactions in RAM simultaneously.

- Both packages run on the 32K version only with a printer and they are in cassette version or on disc. The cassette version retails at £225, with the disc version at £330, together the packages will cost £325. Other packages to be released include invoicing, payroll, stock control, nominal ledger and management information suites. They average approximately £500 each: the most expensive will be £800. The software will be available nationwide and the price includes documentation and a one day training course for anyone who buys it.

- Petact is also looking at the neglected problem of dealer/distributorship training in order to be able to offer necessary software/support training and is currently offering a training course which costs £375. This move was made in order to (i) improve and maintain standards (ii) be adequately prepared to deal with problems that will arise when encountering uninitiated first time (FT) user businessmen.

- Although initially the educational sector accounted for more than 50% applications with fewer than 20% of users requiring business applications, as the market has developed these two categories now account for 40% of Pet applications. A significant share still goes to the "home" market and to administration.

- CBM shows signs of sustained high growth. Sales figures released show a particularly impressive trend. Already first quarter sales were up by 58% on the corresponding period 1978 at $16.4 million. Total sales are ahead of the 8 month figure for 1978 by nearly 20%.

C. ITT CONSUMER PRODUCTS DIVISION

- A new pricing structure has been introduced by ITT which compares very competitively with the identical Apple system. ITT's new recommended retail price for a 16K 2020, with PAL card and colour capability is £867, while a 48K system is £995. Although the end user price of basic 16K Apple is £810, additional expense is incurred for peripherals. Colour is not available for the system.

- The ITT 2020, thanks to Templeman Software Services, now has full indexed sequential file handling. This is currently sold through the company as part of its turnkey service - this system can be used on any Apple system. At present the company does not charge for the indexed sequential software when it is included in one of its systems, but if sold separately its cost would be in the region of £200. The software itself fits into less than 256 bytes of memory and saves the small business user from having to continuously sort files. The average access time is around one second.

- Sometime next year, an eight inch, dual sided, double density floppy drive offering 1.5M bytes is also expected.

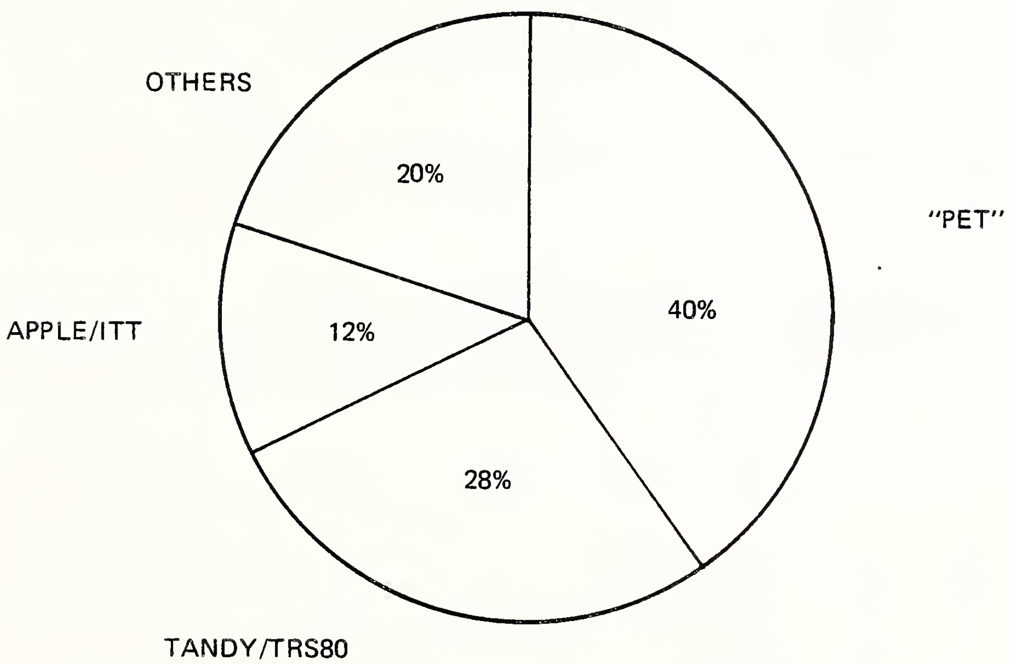
- ITT prices range form £827 to £3,005 (48K), includes 2 floppies and printer and is generally suited to any type of application including business.

- ITT 2020 is currently distributed through 15 wholesaler outlets nationally.

- The Apple II product was originally solely distributed by Personal Computers U.K. In August the Apple Corporation appointed Data Efficiency of Hemel Hempstead as sole distributor for Apple products. This now means that Personal Computers Ltd. and ITT Consumer Products are subordinated to Data Efficiency in the distributors chain for the Apple product.

MICRO COMPUTERS - UK DISTRIBUTION

THE NON-DOMESTIC/MARKET - JULY 1979



CONFIDENCE FACTOR 7.5

11,620 INSTALLATIONS

EXHIBIT IV-2

- The Apple II has similarly been upgraded with a view to penetrating the small business market with the introduction of the Apple II Business System, with 48K bytes of memory, 2 disk drives, video monitor, impact printer and a software package called the "Controller" aimed at catering for SB data processing requirements. Apple has a network of 20 dealers including Keen Computers which is currently developing Apple software application packages and establishing its own distribution network.

- The suitability of Apple for business requirements can be witnessed by the increasing volume of business application packages appearing on the market.

- Apple now plans to ship 1,500 systems per month to the U.K. According to certain sources, Apple has pushed Commodore into third place in the U.S.

D. OTHER MANUFACTURERS ACCOUNT FOR 20% OF MICRO MARKET

- Exhibit IV-2 shows the position for the three main contenders and demonstrates that the remaining 40 product offerings account for 20% of the market up to July 1979. It can therefore be calculated that approximately 2200 units have so far been installed by suppliers other than the "majors" into the business or non domestic market.

- Within this total some well known corporations are beginning to make their presences felt:

  PLESSEY

- Plessey Peripheral Systems is launching a range of DEC based small business systems on the market through the retail outlets of the Byte shop chain. It is expected to produce £1.5 million in additional sales for the retail chain on the assumption that each of the six existing shops will sell one system per month.

- The Plessey systems will make use of a range of business applications packages written by Computer Aided Systems, (the Byte shop's sister company) covering insurance brokerage, general accounting, property management and others.

- A typical Plessey system has 64K bytes main memory, 10 megabytes of disk, multi-user operating system, VT100 printer and software. Costs range from £2K - £3K, for discette based systems.

E. IBM

- It is IBM's express intentions to "blanket the world with computer stores", based on the assumption that the small business computer industry "has not yet experienced its greatest growth". It is believed that IBM will produce 4 new products (below $10K) over the next 5 years which will parallel the high growth level forecasted. IBM is capable of coming down below its 5110 system with bottom prices below $4,000. As well as using direct marketing retail outlets IBM could profitably utilise its bureaux option to pull in small businessmen who are reticent in confiding their businesses to a black box. Similarly bureaux can provide the necessary exposure to new hardware offerings.

F. DATALOGIC

- Another traditional vendor Datalogic, the software services subsidiary of Cossor Raytheon is stepping into microprocessor based business computers with the introduction of a portable but costly machine known as the Microframe, an INTEL 8080 machine, developed jointly with Allied Breweries around a stock taking application. This machine is claimed to be the "world's first computer in a brief case". It includes a 16K byte processor, a Shugart 80K byte mini floppy, a 70 character per line thermal printer and an Akai 4 inch screen. It is likely to cost £3,000 per unit in cases of bulk purchase. This would include a basic executive but no applications software.

- Other product offerings which are serious contendors for the small business market due to the availability of application software packages are:

  - ATTACHE - offering a full business system for £5,000 is distributed through Moncoland and dealers.

  - Compelec Electronics (Series I) distributed through Compelec costing less than £5.000 per system.

  - Cromemco Systems 2 (£2.294) and 264 (£3.050) which are multi-user systems for software development or scientific/industrial and business users with packages available for word processing and database management are distributed through Comart as agents with 12 distributors.

  - Equinox systems, distributed solely through Equinox Computers Limited, include all bundled software (commercial) with prices ranging from £5,000 - £40,000.

  - Compucolor - now ranks fourth behind Pet, TRS - 80 and APPLE in Personal Computer Sales.

G. THE SOFTWARE HOUSES

- An important emerging source of supply of fully configured and developed micros are the software houses. For example, recent INPUT research showed that of those software organisations entering the SBS supply market since 1970, 75% had made the move in the last 2 years.

H. ATTITUDES OF TRADITIONAL SMALL BUSINESS SYSTEM SUPPLIERS

- From the few traditional small business system supplier companies actively using dealer distribution the general view seems to be that 30 dealer outlets in major centres throughout the UK is the best number to manage. In general, manufacturers still support the servicing of their own equipment but expect the outlet to support software. The exception to this is Scotland where distance is a problem for servicing support, and a separate company for servicing whether the actual outlet - or another seems to be the practical solution.

- The companies that are in favour of using dealer outlets for their products are manufacturing advanced calculators, VRC, micro systems and intelligent terminals.

- As soon as the size and flexibility (and therefore cost) of a system reaches the level of a "true mini" or small business system, then the general feeling amongst traditional manufacturers is that the level of expertise needed to support the sales of such a system excludes office equipment dealers, although a number of them work in conjunction with software houses. Exhibit IV-3 tracks the price/opportunity curve for a number of systems and shades the 3rd party dealer's operational area.

- Those manufacturers whose products have advanced up-market from conventional office equipment are more favourably disposed to the use of retail outlets. This is understandable as they have years of experience in dealing with such outlets and understand their methods.

- Those manufacturers whose products have come down-market from large computer systems tend to have numerous branches throughout the U.K. to support direct selling and do not see the need to change their selling methods. In spite of this, several admit that as products become cheaper and more packaged, the unit sales cost will force them to look at other arrangements.

SMALL AND VERY SMALL BUSINESS SYSTEM MARKET - UK
(Average Price/Market Opportunity)

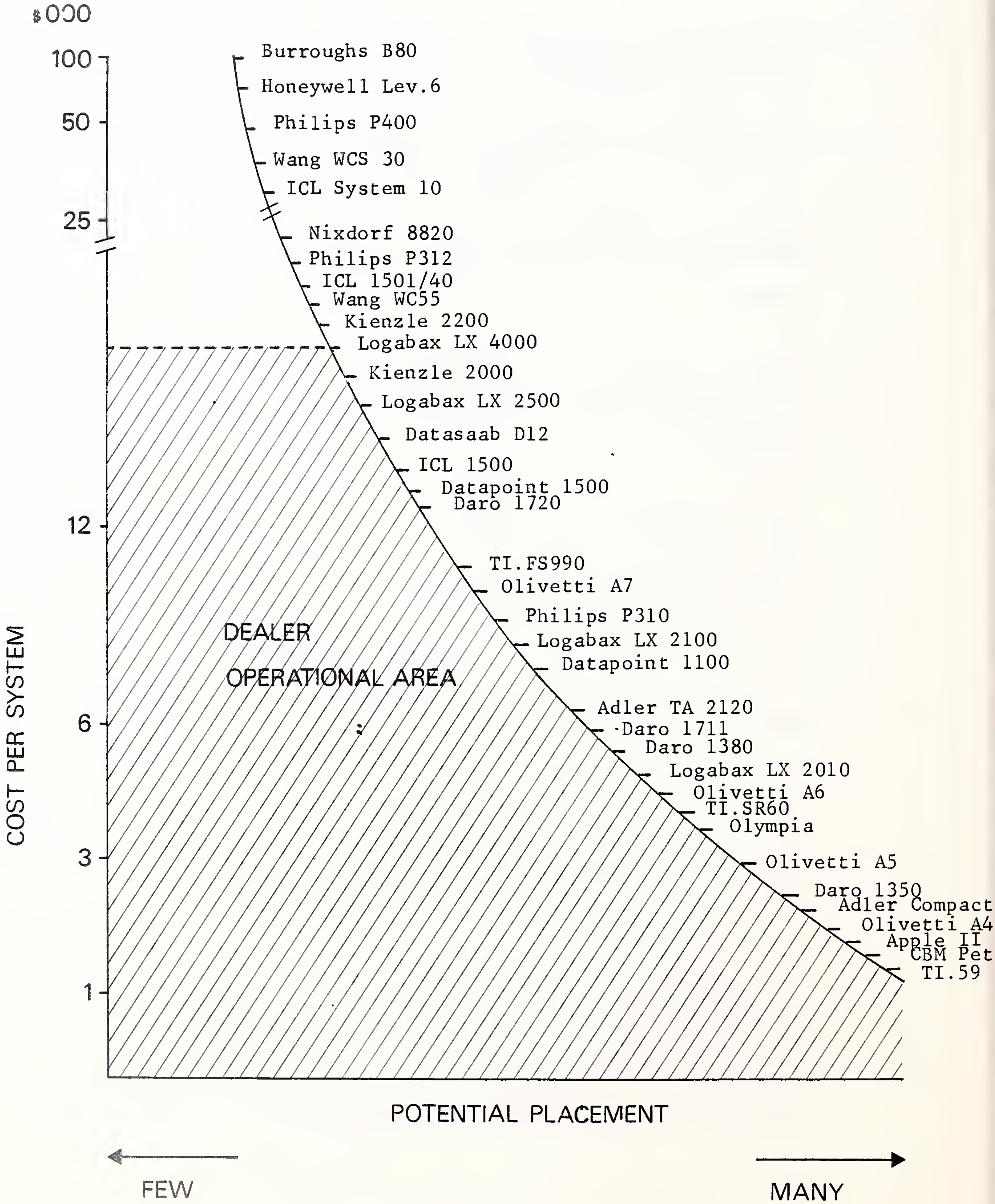


EXHIBIT IV-3

- At the moment few products with a hardware cost exceeding $15,000 are sold through dealer outlets although small business systems with hardware costs exceeding $50,000 are frequently marketed in conjunction with software houses.

- If we consider a basic "small business system" to be a mini computer with programmable memory, keyboard and VDU, a printer, and storage facility - either floppy disk (diskette) or hard disk, then, the minimum cost of such a basic system might be of the order of $10,000. This type of system would be very limited in application. In order to obtain flexibility, and the possiblity of extending such a system as a company's requirements grow, it would demand a current hardware cost of the order of $40,000.

- This must mean that, at the present time, the market available through non specialist dealer outlets is limited and confined largely to VRC's and micro computers of the PET generation.

- The additional cost of software is typically in the range of $2,000 - $10,000 for a SBC package, depending on the complexity and customising of a particular system.

- The consensus amongst those manufacturers who have used office equipment dealers is that there are a number of significant problems.

- The first and major one being the cost of training dealer staff to a level hitherto not experienced by them, (most having had no dealings with the writing or support of software packages). This cost cannot realistically be supported by the dealer so the manufacturer has the expense of extended training for staff not directly employed by his company.

- Secondly, there are few office equipment retailers who can afford the capital investment required in equipment, spares and possibly in workshops with new equipment if they are to provide a maintenance service.

- Another major problem is management of the outlets. The office equipment retailer is not responsible for his methods to the manufacturer and does not necessarily have a great deal of loyalty to his supplier. The dealer, at the present time, is not likely to agree to contract with one supplier and can easily change his policy and leave the manufacturer with a wasted investment. Also, if the retailer does not provide a good service, any problems with the end user have to be sorted out by the manufacturer. This is expensive and time consuming and can impact the reputation of the manufacturer though not necessarily that of the dealer.

- It has been concluded that office product dealerships will provide a more meaningful route for distribution of higher technology products as costs come down and performance increases. Having said this, it presupposes that the skill level of dealers will rise proportionate to the diminishing costs of equipment.

- The problem to the manufacturing supplier is that he will be progressively restricted from taking sufficient out of a unit sale to support direct operations.

- The most likely third party distributors for higher technology products will emerge from the ranks of those computer service houses who have the applications and technical skills to support a product in a fixed area. Certainly, only marketing support will be necessary to develop this sort of third party outlet.

I. ICL AND HONEYWELL TYPIFY TOP DOWN APPROACH

- Both ICL and Honeywell are aware of the highly lucrative market at small and medium establishment levels. Honeywell's only product capable of coming anywhere near this end of the market is the level 6 computer which starts at over $50,000. ICL is somewhat better placed with the 1500/1501 series but even so, leaves unaddressed the large market opportunity below $15000 unit cost. ICL, Honeywell, Burroughs, NCR and IBM are top down suppliers because their traditional strengths lie in the top end of the market with fewer but considerably higher value installations.

J. OLIVETTI, LOGABAX AND ADLER DRIVE THE BOTTOM UP MARKET

- Traditional Office product suppliers like Adler and Olivetti are using the same Universe of dealers as they employ for their typewriter and copier products. In the case of Adler, the data processing products are marketed by Adler Business Systems Ltd, and not by OEM Ltd, which company is only responsible up to the small accounts machine known as Adler Compact. The dealer outlets used by both Adler importers cross over, however and there is a clear case for rationalising this "double handling" in terms of support costs.

- Olivetti has both direct and dealer operations to promote its now dated but still highly successful Audit range. Olivetti sells via a marketing system within some 140 dealerships known as AUDIT CENTERS.

- Olivetti, Adler, Philips, Olympia and Daro are all front line office equipment suppliers and although for the majority of their day to day operations the different sales divisions do not meet, the common denominator is that the divisions, or separate companies (Adler), approach the same Universe of suppliers. These companies are "bottom up" suppliers because they are breaking into small establishments via the traditional office products route.

K. LOGABAX CURRENTLY FACES THE DEALER DILEMMA

- One company which is currently facing the problem of setting up a dealer network in UK is the French Logabax organisation which now supports just over 300 installations in UK.

- Logabax sells desk top micro computers varying from $3000 up to multi terminal systems with a starting price of $40,000 plus. All units are user programmable and the low end products offer the cheapest and most efficient disk drive, small accounting packages currently available. Logabax is also a significant presence in the magnetic stripe ledger card market.

- The difficulties of establishing a competent dealer force for small computer products are nowhere better underlined than when considering the Logabax problem. Since taking the decision to go indirect in February 1977, Logabax has successfully concluded arrangements with only 6 dealers. These assume agency status and have to demonstrate software and engineering support capability. This, plus the need to place a $15 - 20000 stock commitment reduces the field for Logabax.

- The optimum number of dealer outlets for adequate distribution of the Logabax products is thought to be 30. The target date for establishing this number of outlets was optimistically set at September 1st 1979 (1 year 7 months after start up).

L. DARO'S PROGRESS HAS BEEN BETTER THOUGH WITH INFERIOR PRODUCTS

- The Daro organisation offers an East German imported range fairly similar to Logabax. The organisation has been promoting its products via dealers for 2 years.

- In this period 22 agents have been appointed and a total of 550 systems installed. Like Logabax a target of 30 dealers has been set. Logabax has installed 300 systems but at twice the unit cost of Daro.

- Daro appoints different agents for different ranges of products and believes in a solid engineering and support background.

- Daro's next product move is likely to be down market still further to attack the now dating Olivetti A4 range and Adler "Compact" units.

M. KIENZLE PREFERS DIRECT OPERATIONS

- Kienzle's products lie on the upper scale of Exhibit IV-3. Typically the 2200 VRC with floppy discette drive will install at $20,000 plus. The organisation employs 12 sales people to cover the whole of U.K. but has an agent in Scotland who does a complete TURNKEY operation for Kienzle selling maintaining and supporting with all software and training. Kienzle believes it has 18% of the VRC market in UK.

- Up to 3 years ago Kienzle employed agents in U.K. but claims this was a mistake for its level of product. The Company had some very unfavourable experiences having to rescue a number of users who had been poorly served by dealers.

- While it may be true to say that Kienzle had a poor time in the dealer market it is also true that the Company adopted a very unprofessional approach appointing almost any organisation which appeared able to raise the money for a one-off stock order.

N. PHILIPS DATA SYSTEMS ALSO AIMING FOR 30 DEALERS BY END 1979

- With one of the most comprehensive ranges of small computers available in the UK, Philips Data Systems is making a determined effort to gain the confidence of the smaller independent dealers. (Not large chains). The organisation is quite clear that it will not appoint members of either OIG or Beam though offers no supporting explaination. However, this is perhaps explained by the indifferent performance of both of these chains in the matter of the Philips WP5000 word processing product.

- Philips is also clear that not all its products will be placed via dealer and the break point is determined by price ending at the INFORMA P312 range at around $22000 - $24000.

- Philips sends all appointed dealer salesmen and engineers on a 5 week training course and will be providing a very high level of support.

O. TEXAS INSTRUMENTS OFFERS RANGE FROM $400 - 80,000

- Although the majority of the TI range falls into the category of intelligent terminals, some products like those in the 700 series impact the market under examination. The majority of the products in the 700 series have no independent computer capability, but the 774 at around $25,000 is described by TI as "almost a mini". The FS990, on the other hand is a true mini with encapsulated computational power, floppy disk and the 911 VDU.

- Products sold by TI's consumer division include the TI 59 programmable calculator which can control a desk top printer and the SR60 which has an optional keyboard and capacity to interface with a large number of peripherals. The TI 59 is sold via Boots the Chemists, Currys, Lasky's and similar retail outlets starting at around £200 whilst the SR60 is moved through the office equipment dealer trade.

P. NIXDORF OFFERS ONLY ONE PRODUCT BELOW $25,000

- The Nixdorf 8820 is a stand alone mini with VDU, keyboard and printer and offers up to 3 floppy drives. Packaged software only is available.

- The organisation does not use agents or dealer outlets at all but in Scotland operates much like Kienzle with one agent offering complete Nixdorf based turnkey operations.

- Nixdorf is not in a mode to consider expanding into third party sales operations until its product range moves down market more.

V. INDUSTRY PENETRATION OF BUSINESS MICROS

V. INDUSTRY PENETRATION OF BUSINESS MICROS

- In the context "business micros", no shipments to the domestic or home/-hobbyist market are considered. Exhibit V-1 segments shipments up to July 1979. The total volume of shipments is rationalised in Section III.

- Existing specific industry penetration is at present difficult to determine since dealers shipping hardware have not been consistently monitoring sales and to date there has been little evidence of customers liasing with dealers once sales have been made.

- The market is at the stage where:

  - the hobbyist market is decreasingly important,

  - there is an overlap between the enthusiastic businessman hobbyist and genuine "direct to business" sales,

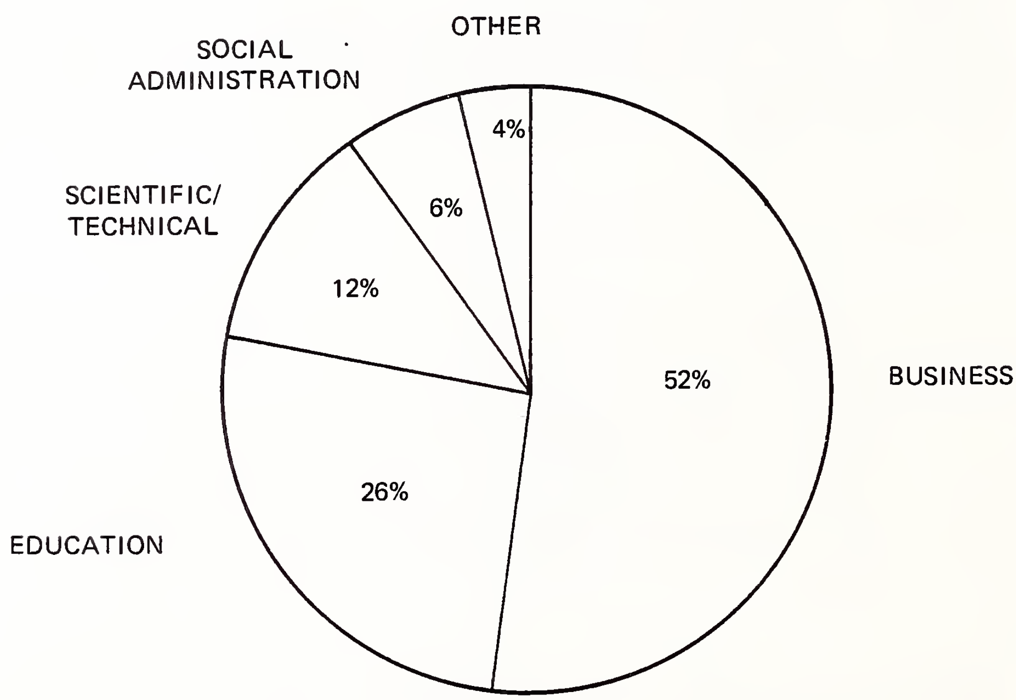
  - the lack of available reliable application packages has meant that technical users have generally been developing their own software in-house.

- However, the business sector, (which includes professions, retail outlets, manufacturing companies, departments of large companies, educational/-scientific/research institutions and government establishments) is accountable for 52% of the market. Respondents claimed that the most important applications in this segment were:

  - credit and stock control,
  - general accountancy including nominal and sales ledger,
  - payroll
  - invoicing
  - file management.

MICRO COMPUTERS - UK DISTRIBUTION

DIVISION OF PLACEMENTS - NON-DOMESTIC MARKET - JUNE 1979
BY MARKET SECTOR*



11,620 INSTALLATIONS

*CONFIDENCE FACTOR-7

EXHIBIT V-1

- As previously indicated the number of manufacturers offering systems targetting the business market is in excess of 40 and is increasing. Those systems for which business application packages are available include Apple II, Commodore Pet, Cromemco, North Star Horizon, Ohio Challenger, and Equinox.

- The key to the business market is reliable applications software and specialists are now orienting packages development to commercial and business users, e.g. Gemsoft, Petsoft, Supersoft.

- Computech has launched Computacount (£295) available for Apple and ITT 2020 dealers.

- Computer Aided Systems, the sister company of the Byte Shop will be providing business application packages for the new Plessey DEC based Euroc range to be launched in September.

- Other business application packages offered by specialists are dealt with in Section VI.

- Commodore Pets and Apples are the most frequently used systems for business applications. Petsoft which will be expanding its Apple business applications library to 50 is indicative of Apple's success in the business environment.

- Users of Commodore Pets expressed general satisfaction with the performance and reliability of the machinery. Systems have been acquired mainly to increase calculating and not computing power, and most programming is being done in-house or standard Commodore packages are being modified. Users expressed the opinion that micros could be considered as an introduction to systems and time sharing bureaux would be used in the future.

A. SPECIFIC APPLICATION RELATED OPPORTUNITIES

- Cost reductions and technology advances have produced an awareness of possible computing benefits further down establishment levels; these include such areas as:

  (i) Pharmacies: There are at present some 10,000 High Street pharmacies in the U.K. dealing with approximately 2,700 prescriptions each month. These could form the basis for applications in drug control, stock management, client and billing. These applications are similarly appropriate in the retail/wholesaling area where in the re-ordering function, a micro would act as a data capture terminal in a communications link.

  (ii) Estate Agents: SWORD in collaboration with RAIR has developed a complete system for estate agents costing £5,980 and £6,955 respectively. The basic software handles day to day functions but other applications including text processing, invoicing and financial ledger will be available later. Other applications might be dilapidation schedules and inventory.

  (iii) Farm Management: Offerings on the market currently cover normal business transactions such as stock control and planting but with software customized to specific needs. At present these offerings are too expensive for a small farmer's budget. Claisse Allen, a software house currently offers Farmfax, a customized management system including 3 programmes Moneyfax, Cowfax and Forfax. The system including Moneyfax costs £13,500 with Cowfax and Forfax both £1,000 extra.

  Betos systems of Nottinghamshire has recently introduced a program for nutritional balancing. The program outputs to the screen and/or printer and runs in 8K. Betos offers it complete with 8K Pet and PR40 printer for £950 - the programme is quoted separately.

(iv) Language Translations: This opportunity has already been taken up by Matsushita Japan and Friends/Amis of U.S.A. who have launched a personal computer for languages translation. This system costs £139 and is currently marketed through Cherry Leisure U.K.

(v) Other micro applications currently under test include banking operations; Microsystems Software of Stanford-le-Hope has developed a real-time system to give same day results of foreign exchange dealings. This application is run on a Compucorp 625 desk top computer.

- Other areas to be investigated include medical record management, spare parts management in the automobile industry, and bills of quantity in the construction industry.

B. EDUCATIONAL MARKET

- Initially the educational sector was the biggest user of micros. This position has now declined in favour of the business segment which has now caught up and surpasses the educational market in terms of application demand.

- However the educational sector will grow over the next 5 years, since this includes not only education in its strict sense but administration aspects also.

- In secondary education a resurgence of interest in micro computers has been taking place, not specifically related to computer assisted learning, but to help teach subjects which require a computing component. Applications currently in use are simulation, 'O' and 'A' levels maths and science, linguistics and social sciences.

- Technological changes are also partly responsible for the increased acceptance of micros in schools. However the likelihood of the extension of computing in schools is to a large extent dependent upon the present policy of the Tory government which to date has not acted upon the Labour proposal to fund the Microelectronics Development Programme in schools to the tune of £12.5 million. Also there is at present a shortage of adequately trained teaching staff in mathematics who are those traditionally involved in teaching computer sciences.

- Having said this, opportunities do remain in the administrative side of education where expenditure cuts in the personnel area will contribute to the extended use of computers.

- The Department of Industry has been involved with reasonable success in Microprocessor Awareness and Applications Programmes both in education and in private industry.

- Other opportunities are also available due to industrial educational demand. Micros have begun to be used in training and retraining schemes, for example British Airways has been using computer assisted learning (CAL) to train clerical staff on their computerised systems.

- Computer manufacturers with software products for C.A.L. such as CDC and IBM see industrial training as a prime market.

- Encouragement through industrial sponsorship is also playing a significant role.

C. SCIENTIFIC AND TECHNICAL MARKET

- This segment includes research, medical overlap educational institutitions, and some departments of large companies. With the decreasing cost of micros, large corporations are acquiring the hardware and using it for specific applications.

- Due to the specialized nature of applications these technical users generally do their own in-house programming and support with only limited liason with third parties. Nascom Systems is geared to usage as a development tool, and Research Machines Ltd., are manufacturers currently catering to this market.

- The scientific usage of micros would increase greatly if more micros were equipped with adequate graphics facilities enabling pictorial representation, which to date has been absent.

D. SOCIAL ADMINISTRATION

- The share of the market accounted for by social administration i.e. national and local government departments currently stands at 6%. Demand will increase due to the following factors:

  - budget cuts do not decrease the need for information 221.000 new sickness claims are registered in one week alone in the Department of Health and Social Security.

  - Devolution of decision making. The government currently plans to abolish 300 controls in local government with the accent on decentralisation on policy creation.

  - At present a Department of the Environment funded study in conjunction with Lamsac will concentrate on the usage of microcomputers in 521 local authorities.

  - Departmental autonomy will meet the new lower cost of equipment.

- Certain vendors have stated that this large potential market has to date remained untapped due to the lack of appropriate software, especially relating to database creation for social services, finance and housing.

VI. USER MOTIVATIONS AND SUPPORT CHARACTERISTICS

VI. USER MOTIVATIONS AND SUPPORT CHARACTERISTICS

A. USER MOTIVATIONS

- Irrespective of the type of user interviewed, the prime consideration when evaluating a micro system currently was stated to be price i.e. whether the machines were economically justifiable.

- Some respondents believed that price would become decreasingly important as a consideration as the market embraces uninitiated users, who once convinced of the benefits of computing, will be looking for the resolution of a problem to enable them to use time more productively.

- As a follow on to this, dealer reliability and credibility was also stated as being important. This shows the dealer will have to understand the needs of the FT client and display the necessary expertise and support. Demonstration and presentation are important factors as dealers are selling a solution to a problem rather than simply a piece of hardware.

B. FINANCE ASPECTS AND THE MICROSPECIALIST DEALER

- 90% companies offer some form of credit or leasing facility. Rental only accounts for a very negligible % of revenue generated by the few respondents following this policy, and in no case exceeded 5%.

- Rental is being considered as an option in the future. Several companies expressed interest in this (e.g. Otus Sound), and some already practice this under certain conditions i.e. special client pre-sale trial basis, (e.g. Personal Computers).

- Other options under consideration are lease/hire and lease purchase. Micro-digital and Mazuma are already developing this facility.

- Future motivations will almost certainly turn on support levels which dealers are able to offer. Amongst these are:

  - Installation help. Currently users are faced with the prospect of unpacking a box of technical equipment, plugging in and discovering how to operate a machine via a handbook. In future dealers will need to upgrade their installation assistance e.g. Field Sales representation or equipment commissioning. These aspects go hand in hand with system selling as opposed to selling a simple consumer durable.

  - Implementation assistance. Implementation implies continued use of a system and therefore ensuring that the customer is fully conversant and able to work the machine to his own satisfaction.

  - Documentation. In the absence of full implementation assistance (approaching turnkey in concept), accurate and definitive documentation should be offered.

  - Maintenance. A separate analysis of current offerings appears below. In this aspect of support, more dealers are already aware of importance and should be able to continue offering a reasonable level of service.

C. MAINTENANCE

- At present 95% of respondents offer maintenance to clients in some form or other. If unable to offer maintenance themselves they refer clients to third party companies or have an agreement to subcontract e.g.:

  - Lasky's radio store subcontract to third party

- Microsense computers, UK distributor for APPLE has a third party agreement with Kode for a 3 tier Apple service, depending on how fast the user wants his computer fixed and how far he is prepared to take it. "On Site" service is the dearest repair scheme, an "at base" contract is cheaper and a "main base" service is the cheapest.

- Radio/audio electronics companies could offer maintenance contracts on the basis of a television type service since they have necessary hardware engineering capabilities, in the consumer durables market. This idea has already been taken up by a micro distributor Rapid Recall, by providing service beyond the normal warranty period (all machinery sales are covered by 90 day manufacturer warranty). The service is designed to cover equipment by other outlets - A flat rate repair costs £20. Although majoring only now in DEC and Intel, other equipment may be covered due to future market pressure from successful OEM suppliers.

- It should be remembered that all machines are guaranteed by law for 12 months (sale of goods Act 1893). Not all respondents were aware of this.

- Summarising responses to the questionnaire regarding maintenance we have noted the following:

  - Full Maintenance contracts in 95% of cases covered all parts, on-site maintenance if required and a replacement machine if the cause was justified.

  - Full contracts usually included 1/2 call-outs per year. Additional labour was charged on the basis of £15 - £25 per job within a radius of 25 miles.

  - Mean Time to Respond (MTTR) was found to be very good and in no case was more than 24 hours.

- Absolute repair time (back on steam) varied between 48 hours and 1 week.

- Average price of maintenance was $12\frac{1}{2}\%$ of hardware costs (8-15%).

- 75% respondents, would offer a replacement machine but were reluctant to do so.

- Symtec and Davidson Richards both offer combination of own/manufacturer contracts.

- Millhouse designs - has agreement with 2 other companies who do maintenance. They subcontract for Commodore Pets.

- Within warranty period machines are replaced.

- Most repairs were handled on the basis of spare parts replacements.

- Personal Computers Ltd. - offer 48 hour back-on stream service. Presently the company is looking at on-site maintenance with a third party. (Approximately 15% cost).

• Comart, the UK agent for Cromemco, North Star Processor Technology and Dynabyte has an agreement with Computer Field Maintenance for the exclusive provision of national field maintenance on products from their suppliers based on regional service centres.

D. APPLICATION SOFTWARE ASPECTS OF FUTURE VENDOR MOTIVATIONS

• Exhibit VI-1 summarizes present microdealer attitudes to the provision of software and indicates possible trends in the future.

MICRO COMPUTERS - UK DISTRIBUTION

SPECIALIST COMPUTER STORES
SOFTWARE ASPECTS

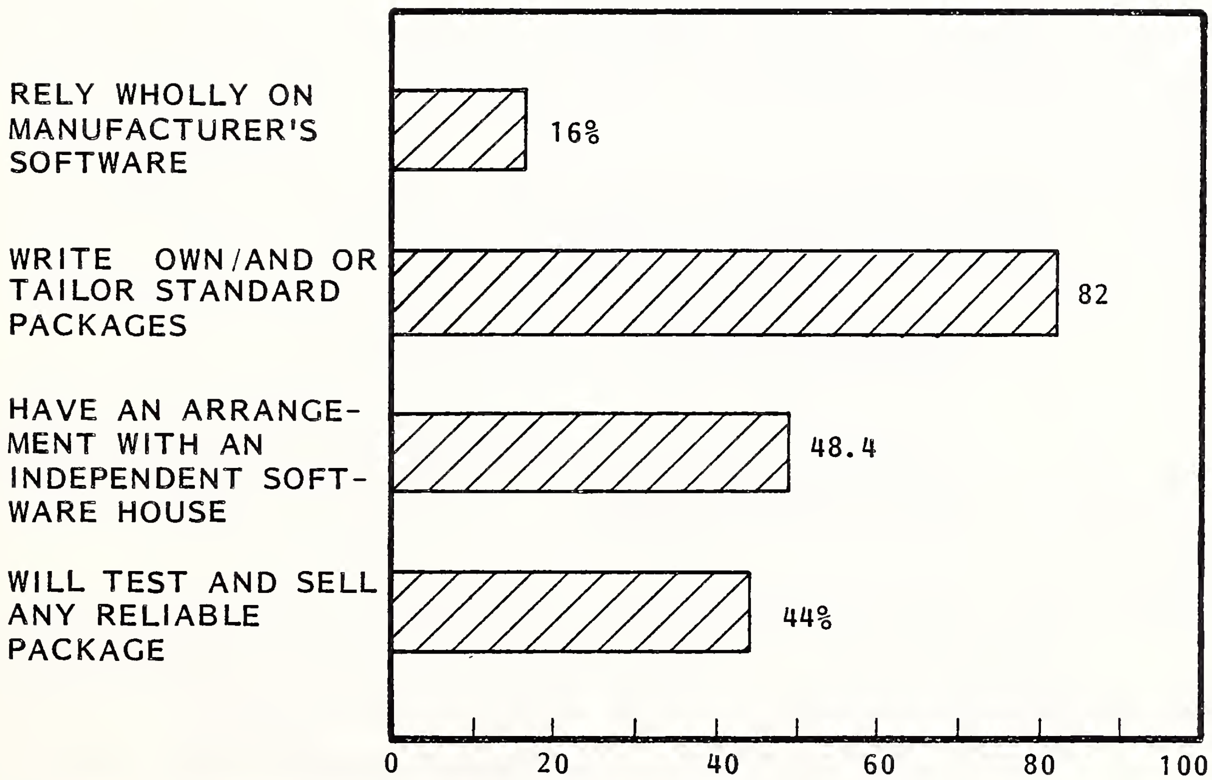


EXHIBIT VI-1

- The fact that only 16% of dealers rely solely on manufacturers' software offerings reinforces the nearly universally expressed opinion that present manufacturers' software packages especially in the business sector are inadequate, unreliable and inappropriate.

- 90% of respondents claimed that some degree of tailoring was necessary. This indicates the conflict that is likely to arise between specialist dealers/software houses and manufacturers for the provision of software, as the market embraces unitiated users who will demand these indispensable ancillary services.

- One of the major problems that needs to be resolved is that of standards. At present users are either writing their own or if this is not available, they are turning to external sources who will either modify standard packages or customize to users' specific requirements.

- Most applications software packages are deficient in terms of fulfilling standard requirements for example:

    - language incompatibility with the computer,
    - package cannot cope with the particular codings in use. (It is generally cheaper for the client to start from scratch rather than modify the manufacturers' packages).

- Micro specialist dealers believe themselves to be well placed to provide reliable application software packages to an expanding small business market. Software development is the major key to success in the small business market. Micro specialists/software houses are aware of this and believe that the problems manufacturers are currently facing vis-a-vis software support would be to their advantage for the following reasons:

    - Manufacturers do not have the necessary capabilities to cover support/-software to match the increased volume of sales.

- Specialists have a flexible approach and because of this can specialize in software dependent sectors e.g. transport. As the market widens the user will demand not only the hardware but also all necessary ancillary services.

- Cost is an equally important factor. At present most first time users are unaware of the prohibitive software development overhead, especially in the case of customized software. The need to produce reliable standard packages which are within the users' budget will become apparent. At present 23% of respondents stated that they sold their own applications packages.

- Examples of the specialists offering their own standardized business application packages include:

  - Tridata of Birmingham (stock control c. £200).
  - Symtec Systems produces Microstar (stock control, ledgers, nominal ledger).
  - Millhouse Designs (stock control).
  - Lion Computers (full accounting packages).
  - Microsense produces Microsave (business accountancy).
  - Rockcliffe (stock control).
  - Computastore produces a Pet batch based payroll program costing £188. Another package PETE enables the Pet to be used as a terminal to a mainframe or mini, and to be used for local editing of programs and data.
  - Davidson Richards markets both Wilcox Series II commercial application packages and offers its own order entry packages.
  - Keen Computers is developing Apple software packages.

- Respondents were quite clear that there would be a corresponding need to provide customized software to cater for user specific requirements. Within the 82% featured in Exhibit VI-1 over half provided this service already and believed it would grow.

E. VENDOR ATTITUDES TO THE PROVISION OF TURNKEY SOLUTIONS

- As previously recorded, vendors need to offer considerable back up support. One method of ensuring that the user pays for these support costs is to "Package the Solution" as a turnkey product. This means that a total price plan is produced which includes such items as:

  - hardware costs,
  - application software,
  - implementation of system,
  - user "hands on training", including documentation.

- Maintenance and software updates are also optional package items.

- Vendor attitudes to turnkey vary and are summarised as Exhibit VI-2.

  Note that: Already 65% of vendors offer turnkey solutions and their belief in the growth of this demand is reflected by the increase in the % of respondents (75%) who would continue or will offer this option in the future. This expressed view indicated their assumption that in the future the user will not have enough time available to devote to computing and will be looking for a total solution.

- 25.8% of respondents already provided total bundled solutions. Equinox Computers is one example of this policy, whose total bundled business systems retail at approximately £5,000 per unit.

- At present some vendors offer turnkey solutions in conjunction with a software house and software is priced separately.

MICRO COMPUTER SPECIALISTS - TURNKEY ASPECTS

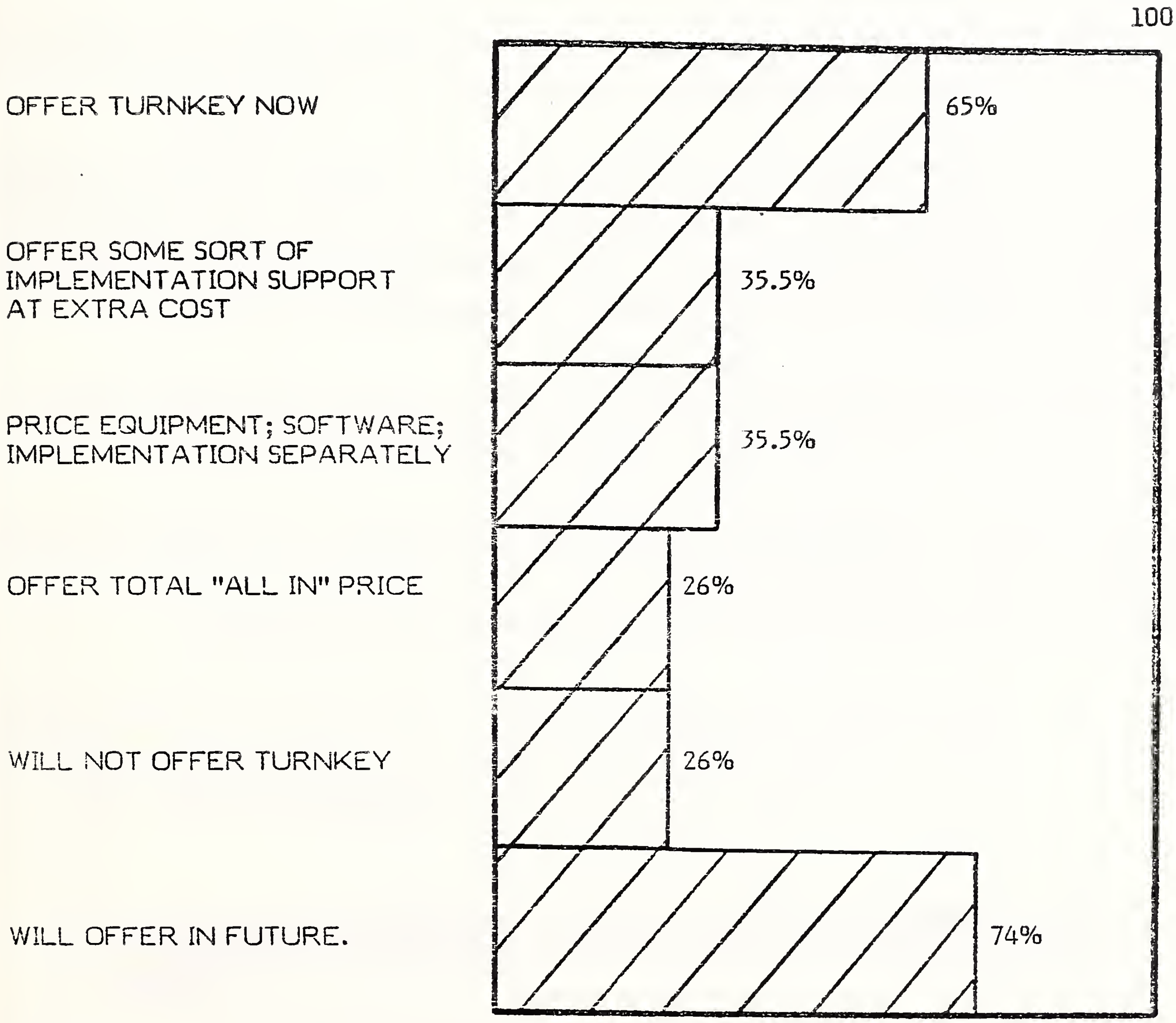


EXHIBIT VI-2

- Companies who are currently acting as hardware suppliers only e.g. Laskys audio stores, will not be offering turnkey in future because of high investment costs in staff which would be necessary to enable them to offer substantial support to users.

- In the case of complex applications office product dealers stated that they subcontract to third party software houses.

- There is growing collaboration between micro specialist dealers and software houses for the provision of both improved, standardized application packages and total bundled solutions. This bears witness to the fact that areas so far neglected by manufacturers are now being examined.

- Options which were stated as open to microspecialists/software houses to maintain and expand their customer base were:

  - the provision of standard application packages with ancillary services at an extra cost,

  - provision of total system/total service (turnkey) option.

- Manufacturers could choose the option of collaboration with software houses for the provision of improved software/turnkey solutions. The question of monitoring and control would then have to be resolved.

F. COMMUNICATIONS ASPECTS OF THE BUSINESS MICRO COMPUTER MARKET

- Due to the fact that few vendor respondents monitor sales and are generally ignorant of eventual usage to which micros are put, it is impossible to state whether micros were used as data capture terminals in on-line communications to minis/CPU from vendor interviews.

- From user interviews we determine that it is unlikely that at the present stage of market development micros are used in communications, but they are used in a stand alone capacity for limited applications.

- If FT business users are the target it is unlikely they will be interested in the communications facility until a much later stage. Their main priorities are - resolution of a problem, capability of the machine to do a job and cost effectiveness.

- Micros may be used in education and medicine in a communications role but educationalists expressed preference for small in-house computing rather than a back-up to a centralised CPU evidencing a marked preference for autonomy.

- Within the industrial sector, it is forecasted that micros will be used in stand alone mode for dedicated tasks.

- The advent of Prestel etc, makes the communications link attractive. It is hoped that the Post Office will make it possible for low cost modems produced by themselves or by the industry to be jack plug connected to exchange lines for automatic call - reception.

G. PRESTEL LINK UP

- With TECS, it is now possible to acquire equipment which enables one to read Teletext/Prestel and buy a cheap computer all in one. The Technologics Ltd "Expandable Computer System" was designed to bring to the professional/-business and domestic user cheap decoding and computing, with price range £360 - £1200. The main applications areas are considered to be education and training, business and domestic. When used with Prestel, it offers the user an intelligent terminal capable of off-line editing, data storage and local processing thus increasing the cost effectiveness of the viewdata service.

VII. THE ALTERNATIVE DISTRIBUTION CHANNELS

VII. THE ALTERNATIVE DISTRIBUTION CHANNELS

- Exhibit VII-1 presents the available channels of distribution in the U.K. The total universe for micro computer distribution is currently 27000 outlets, ranging from non-specialist outlets (these include hi-fi stores, audio stores, etc.), which account for 24650 (91.23% total available universe) through to specialist computer stores (400 - 1.5%) total universe. The exhibit also features the inverse nature of market penetration demonstrating that the relatively small number of micro specialists currently dominate installations.

- The universe is reduced, due to the failure of certain outlets to fulfil adequately the criteria deemed necessary for successful distribution (summarised below).

A. THE SPECIALIST COMPUTER STORES (micro computer stores)

- At the top of the current distribution pyramid (see Exhibit VII-1) are specialist micro computer stores currently estimated at 400 outlets, but whose number is steadily increasing due to the following reasons:

  - The segment is dominated by entrepreneurial types who see business opportunities available in present "product driven" dynamic market.

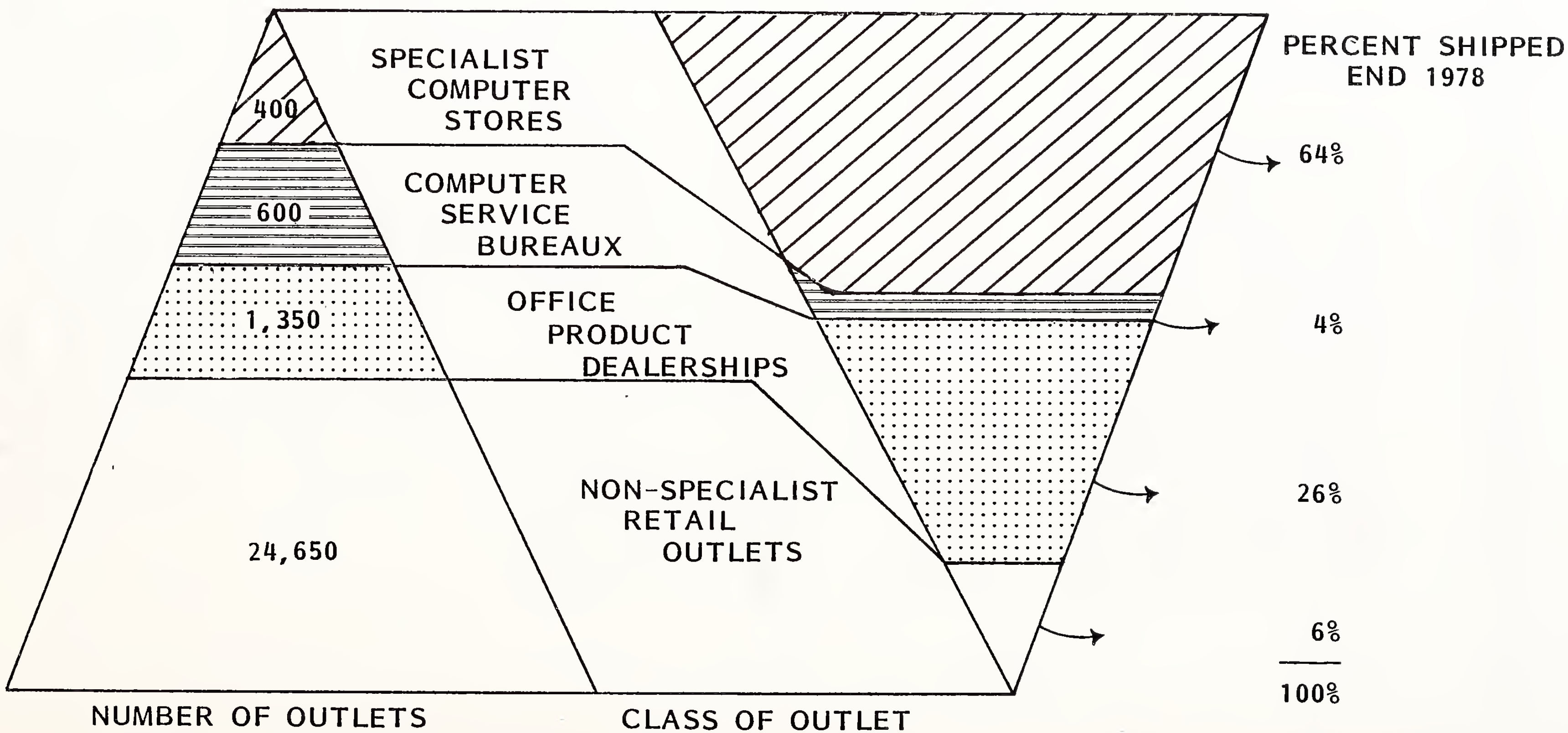
  - They have the necessary expertise and computing knowedge to be able to demonstrate the capabilities of a small computer.

  - They are typically small businesses which so far have small overheads.

  - They understand that software is the key to future market, and since many have this necessary skill, they can be successful. However, shake out will inevitably occur and mortality is likely to be high because cash flow problems are beginning to emerge.

EXHIBIT VII-1

MICRO COMPUTERS - UK DISTRIBUTION
INVERSE RELATIONSHIP EXISTS BETWEEN DISTRIBUTION VOLUME AND TYPE OF ORGANISATION



LOCATION OF ESTABLISHMENTS SHOWS NO TREND

- Well over half of the total establishments are found in low priority shopping areas and very few on trading estates. There is no evidence to suggest that turnover is linked to location at this stage of the market development. None of the sites were in modern shopping precincts but this is only a reflection of the fact that few interviews were conducted in the "new towns". Exhibit VII-2 demonstrates the full result of this aspect of the survey.

GROUP AFFILIATION IS NOT A TREND

- Perhaps following the conservatism generally associated with the large well known groups of retailers and office product dealerships, only 3% of the outlets fell into the large group frequency of 20 plus branches. Even the medium size group (6-19 branches) could claim only 6% of outlets. By far the dominant establishment frequency was the single establishment enterprise which accounted for 64.5% of establishments interviewed whilst the small chain people (2-5 branches) took 25.8%.

CATCHMENT AREA IS WIDER THAN EXPECTED

- The majority of respondents stated that their catchment area was in excess of 60 miles radius. This is accounted for by three factors.

  - The infancy of the market enables vendors to pioneer/canvass on territory as yet unserved by another vendor.

  - Local newspaper advertising means that enquiries will spring from further afield.

  - National advertising by importer generates enquiries which are then passed to the "nearest" stockist.

LOCATION OF ESTABLISHMENTS SELLING MICRO COMPUTER PRODUCTS

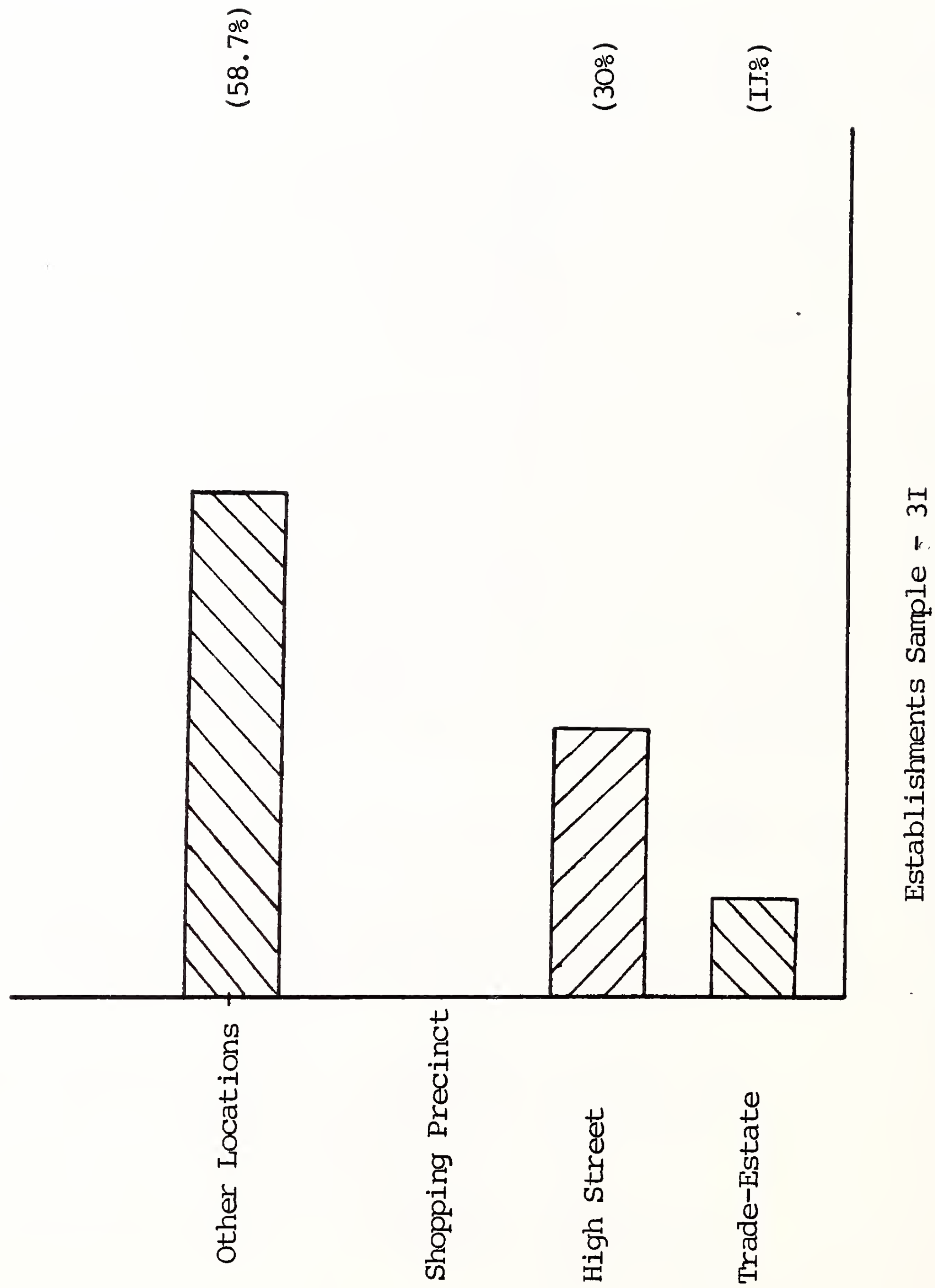


EXHIBIT VII-2

CATCHMENT AREAS OF MICRO COMPUTER DEALERS

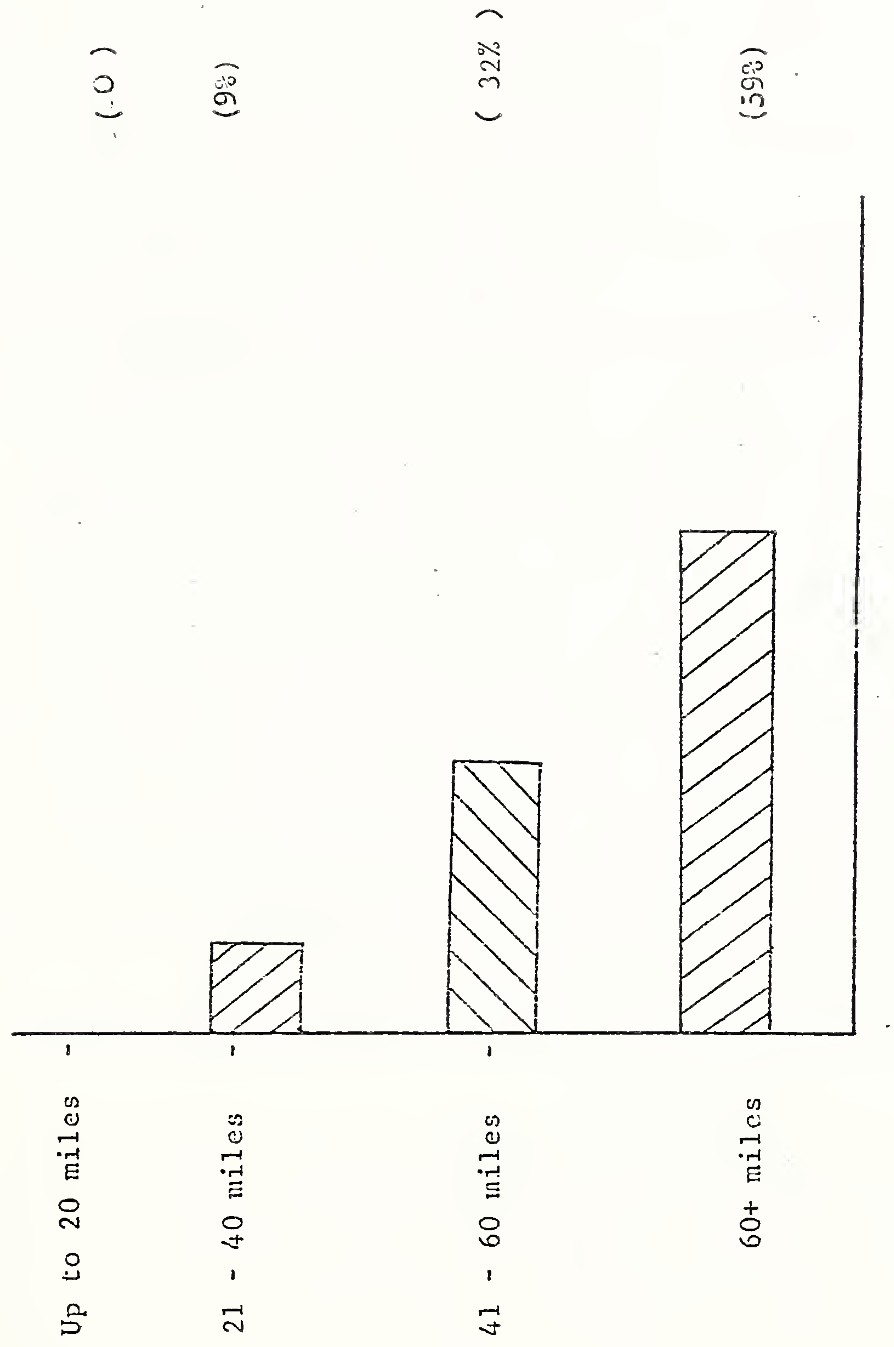


EXHIBIT VII-3

- It is doubtful whether this will continue as more dealers/retailers are attracted to this type of product. Exhibit VII-3 summarises this area of the analysis.

FREQUENCY OF TURNOVER GIVES NO SURPRISES

- Turnover frequency groups are those used for the major analysis of office product dealerships. The table below gives the percentages of respondents whose establishment turnovers fell into the chosen frequencies.

£K.	50-149	150-249	250-499	500 +
	0	28%	43%	28%
	A	B	C	D

- The most popular current business size would probably be turning over just in excess of £440K. This is somewhat higher than the most popular frequency class in office distribution outlets which combine both office equipment and computer product sales in a non-specialist environment.

DERIVATION OF TURNOVER AND EMPLOYEE ANALYSIS

- The table below tracks the different turnover classes (A-D) against derivation of turnover.

CLASS	EQUIPMENT	SUPPLIES	FURNITURE	SERVICE	OTHER
A	80-90%	'N'	'N'	'N'	
B	65-70%	16-20%	'N'	17-20%	15-30%
C	55-65%	18-22%	'N'	18-21%	'N'
D	80-90%	15-25%	'N'	'N'	'N'

'N' = Negligible percentage

- At the extremes of the distribution classes, A and D, it should be noted that the majority of turnover falls into the equipment category whilst in the medium bands B and C the spread of turnover is even and very similar. Surprisingly, service features as a neglible component of both A and D classes. This is probably accounted for by the fact that the upsurge in their business figures has taken place very recently and much of the equipment installed is still under warranty which is totally underwritten by the manufacturer.

EMPLOYEE ANALYSIS

- Certain establishments have software specialists/hardware support staff who simultaneously fulfill the sales function: since demonstration is an integral and vital part of the sale, a fair degree of knowledge is necessary.

- Exhibit VII-4 illustrates the employee deployment by size of turnover of an establishment. The exhibit clearly demonstrates the relationship in these outlets between turnover and quantity of staff employed. The majority of respondents would not divulge actual turnover by virtue of the infancy of their enterprises. It should also be noted that many outlets employ part time programmers etc. These do not feature on returns.

THE IMPACT OF THESE OUTLETS

- It is far too early to clearly determine the potential impact of these organisations. However, a telling time is certain to arise in the next 6 - 12 months as users need to develop their systems and support to cope with growing business demands. Hitherto, very little effort appears to have been placed in supporting the products and the majority of outlets have been creaming off the enthusiast market which overlaps the business area where the user seems more able to develop his own operational procedures with the aid of a handbook - much like the sophisticated calculator market.

EXHIBIT VII-4

MICRO COMPUTERS - UK DISTRIBUTION

MICRO COMPUTER STORES - EMPLOYEE ANALYSIS						
CLASS	SALES	ENGINEERS	SOFTWARE SPECIALISTS	ADMIN-ISTRATION	OTHER	TOTAL
£ 50-149K	1.75	2.25	-	1.60	-	5.03
£150-249	2.45	2.43	0.54*	2.08	3.00	9.84
£250-499	4.00	3.63	1.20*	3.12	4.25	14.20
£500 +	8.00	2.80	3.25	5.40	4.50	18.05

*PLUS FREELANCE STAFF

- As the products are now being taken up by the non-educated user market, greater stress is being placed on the support facilities of the supplier organisations. It is widely held in the trade that an indeterminate number of new dealers will fail over the next 2 years and that consequent damage may be caused to the computer industry's reputation with users as a result.

- One credible answer to this problem is that regional support centres will need to be opened by the micro vendors. This marketing method is likely to be developed by ITT which company has purposefully adopted a far more selective method of appointing distributors than its competitors. IBM, also, has a unique opportunity to link its office and micro computer products to a retail outlet type marketing depature. Software houses and service Bureaux also will have a useful role to play in the early stages of the marketing scenario for this generation of small system. This aspect of the market potential is now examined in greater depth.

B. COMPUTER SERVICE BUREAUX AND SOFTWARE HOUSES

- Computer Service Bureaux and Software Houses are becoming increasingly involved in micro market driven by their pre-eminence in software. Although to date they have only accounted for 4% of micros distributed in UK this is likely to increase due to the following factors:

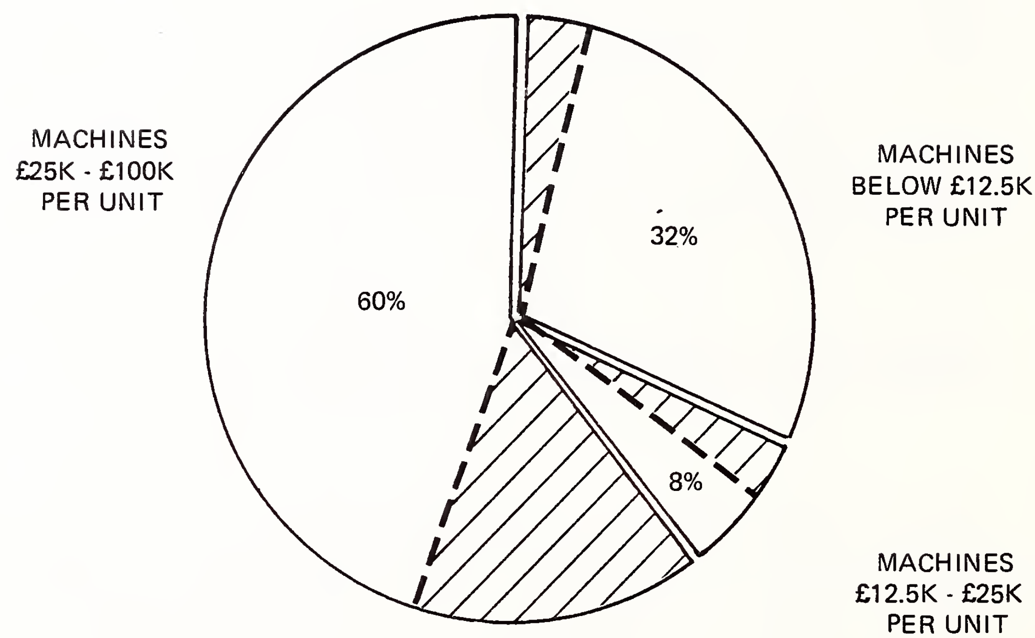
  - They have necessary expertise in software support/programming enabling them to target first time user's and cope with related problems.

  - They have the necessary flexibility to understand FT user needs, and can produce user tailored software.

  - They have local knowledge.

MICRO COMPUTER DISTRIBUTION

SHIPMENTS OF SMALL COMPUTER PRODUCTS IN UK 1978



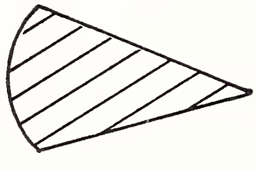


EXHIBIT VII-5

EXHIBIT VII-6

MICRO COMPUTER DISTRIBUTION

COMPUTER SERVICE ORGANISATIONS ALREADY SELLING A SMALL COMPUTER PRODUCT

AS LINK TO OWN SYSTEM	TURN-KEY	BUSINESS APPLICATIONS				HARDWARE PRICES	DATE STARTED SELLING
		FIN	ORD	PAY	OTHER		
50%	66%	75%	48%	21%	8%	A - 68% B - 12% C - 8% D - 8%*	1970-72 4% 1973-74 1% 1975-76 18% 1977-78 48% 1979- 27%

FIN - FINANCIAL
ORD - ORDER ENTRY AND INVENTORY
PAY - PAYROLL

A = ABOVE $50K
B = $25K - 50K
C = $10K - 25K
*D = BELOW $10K

470 INSTALLED BY 7/79

- As hardware costs decrease and in view of the fact that manufacturers' business software to date is unreliable, many software houses will take up the opportunity to develop good application packages. Since COBOL compilers have now become available for the micro, a large amount of existing software can speedily be developed to run on micros too.

- Exhibit VII-5 and VII-6 chart the extent to which computer service organisations are involved in selling small computer products.

- There is increasing evidence of integration/collaboration between software houses and micro vendors for application software packages (see Exhibit IV-9 application software).

- Small service companies have other specific advantages over large hardware manufacturers:

    - contact with the buyer at personal level,

    - with lower overheads they can operate on smaller margins,

    - large companies generate revenue through offering standard products "en masse" and are generally incapable of tailoring to requirements or offering turnkey solutions,

    - they are more flexible and more in touch with dynamic market changes.

- Exhibit VII-7 presents the ranking of reasons advanced by C.S vendors for offering micro equipment.

MICRO COMPUTERS - UK DISTRIBUTION

RANKING OF REASONS FOR CS VENDORS OFFERING MICRO EQUIPMENT

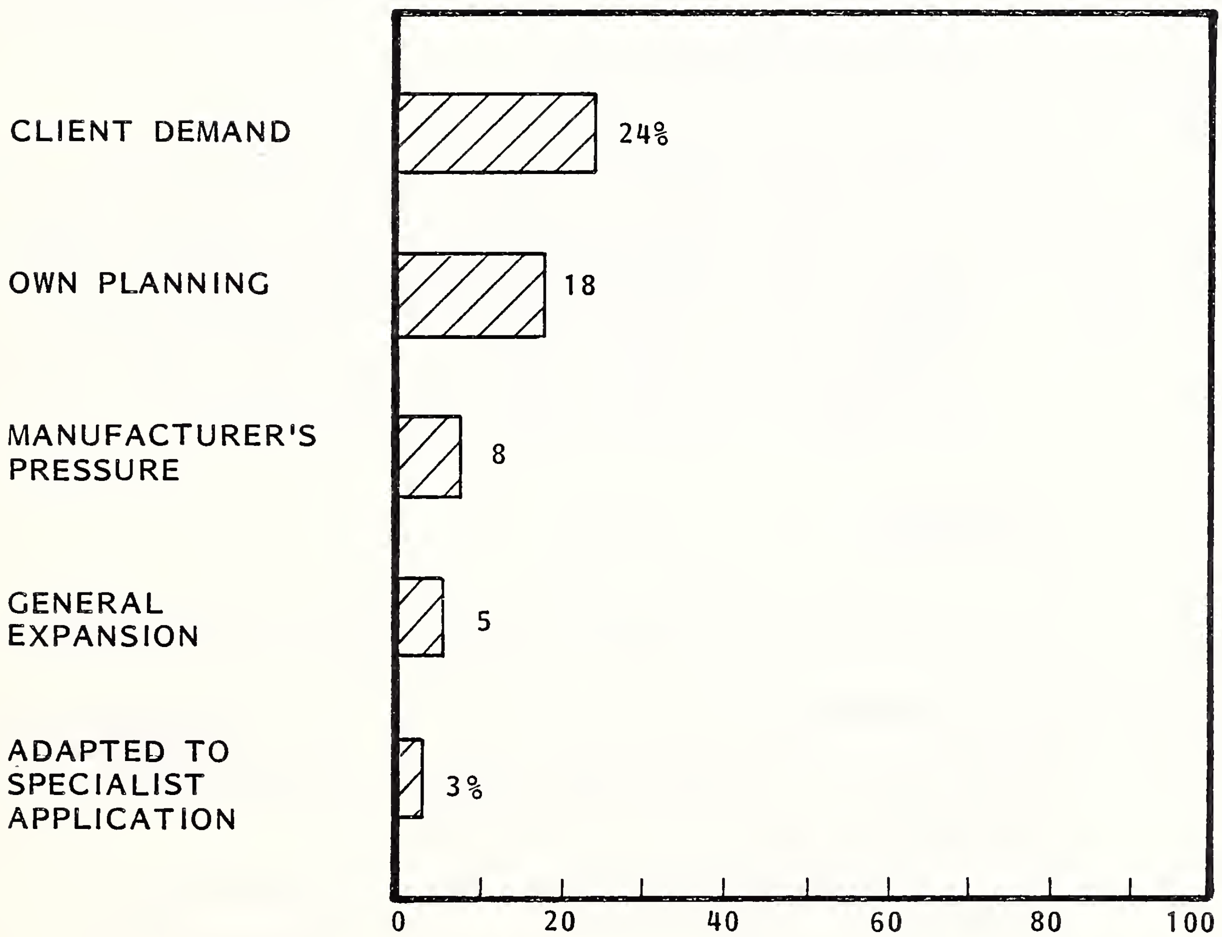


EXHIBIT VII-7

C. THE OFFICE PRODUCT DEALERSHIPS

ISOLATION OF UNIVERSE

- The Universe selection has been based on the following criteria:

  - The degree to which an outlet pursues the business of office equipment distribution as opposed to stationery, furniture supplies and "lightweight" office machines. A turnover in excess of £50K per annum/per establishments should exist.

  - The presence of at least two major office product suppliers in the range of equipment offered by the establishment. It was noted that although a given town yellow pages directory could list a large number of outlets only a proportion of these were used by equipment suppliers. This was established on the first range of test sample taken for telephone interview.

EXAMPLE 1

- An example of this is found in COVENTRY where the following applies:

Yellow pages listing:		30 establishments
Cross over from other areas (double listing)	8 establishments	
Comparison with major suppliers lists reduces potential by a further (lightweight office products)	9 establishments	
20% are stationery, furniture or single product	6 establishments	
	23	
	7	
add those specialising in single products	4	
Outlets Total	11	

- Therefore, a genuine machine distribution Universe of office products outlets is 11 as opposed to the 30 originally listed.

- By applying a grossing principle using Coventry's population as a reference frame. The following emerges:

Coventry Population	351950
Working Population @ 45% =	158377

UK (excluding Northern Ireland) Population 49.04 millions
UK working population (excluding N.I.) 22.06 millions.

Office equipment outlets Coventry = 1 per 5279 workers

Office equipment outlets UK (exc. N.I.) = $\frac{22.06}{.005279}$ = <u>4178</u>

Using refinement technique as above:

$$\frac{11}{30} \times 4178 = \underline{1532}$$

- Thus using Coventry as a base the Universe of possible outlets can be assessed at <u>1532</u>.

EXAMPLE 2

LEEDS listing gives		55 outlets
Less cross overs	16	
Major suppliers exclusions	11	
20% stationery etc.	11	
		38
		17
add specialists		6
Outlets Total		23

Working population 508,000 x 45% = 228600

workers per outlet $= \frac{228600}{55} = 4156$

UK working population 22.06 (m)

UK total outlets based on Leeds example

$$= \frac{22.06\text{ (m)}}{.004156} = 5307$$

Using refinement technique:

$$\frac{23}{55} \times 5307 = \underline{2219}$$

- Thus, using Leeds as a base, the Universe of possible outlets can be assessed at 2219.

EXAMPLE 3

BRISTOL lists		58 outlets
Less cross overs	17	
Major Supplier exclusions	13	
20% stationery etc.	11	41
		17
add specialists		3
Outlets Total		20

Working population 429000 x 45% = 193050

Workers per outlet $\frac{193050}{58}$ = 3328

UK working population = 22.06 (m)

UK total outlets based on BRISTOL example

$$= \frac{22.06\ (m)}{.003328} = \underline{6628}$$

Using refinement technique

$$\frac{20}{58} \times 6628 = \underline{2285}$$

- Using Bristol example Universe of possible outlets is 2285.

EXAMPLE 4

NEWCASTLE UPON TYNE lists		28 outlets	
Less cross overs	11		
Major supplier exclusions	5		
20% stationery etc.	6	22	
		6	
Add specialists		5	
Outlets Total		11	

Population = 253780 x 45% 114201

Workers per outlet = $\frac{114201}{28}$ = 4078

UK working population = 22.06 (m)

UK total outlets based on N.O.T. example

= $\frac{22.06 \text{ (m)}}{.004078}$ 5409

Using refinement technique

$\frac{11}{28}$ x 5409 = 2125

- Using Newcastle upon Tyne example Universe of possible outlets is 2125.

EXAMPLE 5

CARDIFF lists		25 outlets	
Less cross overs	7		
Major suppliers exclusions	6		
20% stationery etc.	5	18	
		7	
add specialists		3	
Outlets		10	

$$\text{Working population} = 259700 \times 45\% = 116865$$

$$\text{Workers per listed outlet} = \frac{116865}{25} = 4675$$

$$\text{UK working population} = 22.06\ (m)$$

UK total outlets based on Cardiff example

$$= \frac{22.06\ (m)}{4675} = 4718$$

Using refinement technique

$$\frac{10}{25} \times 4718 = \underline{1887}$$

- Universe of possible outlets using Cardiff as a base is <u>1887</u>.

- The Summary of these five examples is presented as Exhibit VII-8. The negatively skewed distribution provides a range of between 1532 and 2285 locations. The median of this range is 2172 and it is therefore assumed that the maximum possible market of outlets to cater for distribution of the products under review is represented by this value, known as the ABSOLUTE UNIVERSE.

UNIVERSE EVALUATION - BY POPULATION REDUCTION

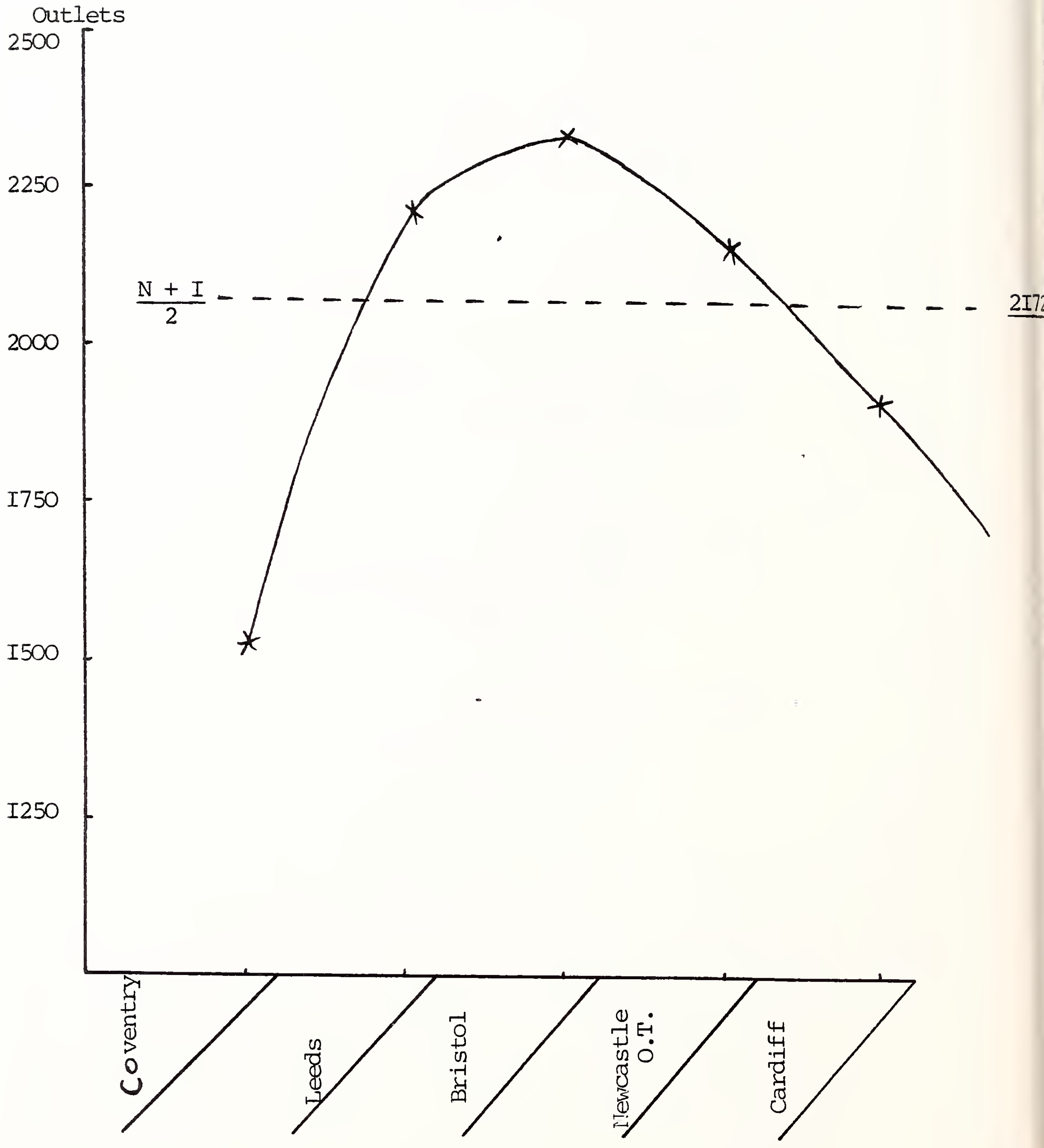


EXHIBIT VII-8

MEDIAN BELIES TRUE OPERATIONAL UNIVERSE

- It should be noted that whilst the quantity 2172 may represent the absolute universe of outlets it would be improper to employ this value for the purpose of grossing values.

- The position is re-inforced by the following:

  - Only just over 50% of this establishments total is regularly sold to by leading suppliers such as Adler, Olympia, Philips and Olivetti.

  - A large part of this number is represented by single establishment enterprises having a total turnover of below £50,000 per annum.

MAJOR SUPPLIERS REGULARLY EMPLOY 1100 - 1300 OUTLETS

- The major supplier organisations referred to sell regularly to between 1100 and 1300 outlets. The majority of the balance of the absolute universe, although able to gain access to the equipment categories under review, does so on an infrequent and ad hoc basis, often only against prior user order and then often via a wholesaling operation using one of the main dealers included in the 1100 - 1300, which can be termed the PRINCIPAL UNIVERSE. It is this wholesaling facility and low value, high volume product lines like calculators, light weight typewriters and small dictation units (like BINATONE and EMGEE products) which qualify many outlets for inclusion as office product dealers in non specialist directories.

- The Universe for grossing values achieved by this research project is therefore the PRINCIPAL UNIVERSE and a value of 1200 outlets has been selected.

- The total machine market values for the SECONDARY Universe accounting for 972 outlets, would not be materially impacted by virtue of the wholesaling from principal to secondary outlets.

MICRO COMPUTERS - UK DISTRIBUTION

ORGANISATIONS IN VARIOUS SIZE GROUPS	
OFFICE PRODUCT DEALERSHIPS	
• SINGLE UNIT ESTABLISHMENTS	796
• SMALL GROUPS (2-5 OUTLETS)	297
• MEDIUM GROUPS (6-19 OUTLETS)	68
• LARGE GROUPS (20+ OUTLETS)	189
TOTAL	1,350

EXHIBIT VII-9

- It is important to note though that an element of main supplier to secondary outlet business is occasionally conducted. A nominal increase in the principal Universe has been created to cater for this situation and accordingly a further 150 outlets has been added to the principal Universe to cater for this weighting.

- The final operational Universe of office product outlets having regard to all aspects as explained above, is 1350 outlets. Exhibit VII-9 illustrates the construction of the universe of outlets.

TARGETTING THE SAMPLE

- The powerful Office Machines Equipment Federation lists only 530 retail outlets as machine distribution points in the UK. The OMEF list has been used as an important cross reference for establishing targets for interview.

- The regular open account business of OEM is conducted through 1096 dealers in the UK. This list has also been used as an important source. The lists from Olivetti, Olympia and Facit have also provided important material.

- The telephone reduction of the interviews took place in the first instance without regard to information from suppliers or OMEF. Thus, the reduction of listed dealerships was able to be achieved via personal experience in the examples listed above. Having achieved this, the selection of targets for interview was able to proceed in a more judicious manner using proven information sources like the supplier lists.

- The INPUT directory of office product distributors features over 500 outlets and analysis is based on 464 interviews:

Establishment Size Group		Responses
1	(single enterprises)	277
2	(2 - 5 outlets)	101
3	(6 - 19 outlets)	23
4	(20 + outlets)	63

EXHIBIT VII-10

MICRO COMPUTERS - UK DISTRIBUTION

OFFICE PRODUCT DEALERSHIPS

STAFF DEPLOYMENT (NATIONAL)							
SIZE GROUP OF ESTABLISHMENTS		STAFF PER ESTABLISHMENT (INDIVIDUALS)					
		SALES IN	SALES OUT	SERVICE	ADMIN- ISTRATION	OTHER	TOTAL
(SINGLE UNIT)	1	1.65	2.30	4.21	3.26	.85	12.27
(2-5)	2	1.39	2.42	3.71	3.95.	3.00	14.47
(6-19)	3	2.30	7.40	7.10	7.60	3.50	27.90
(20+)	4	4.50	5.70	7.30	7.50	4.10	29.10

MICRO COMPUTER DISTRIBUTION

OFFICE PRODUCT DEALERSHIPS

SIZE GROUP		STAFF PER ESTABLISHMENT	
		SYSTEMS TRAINED SALESPEOPLE	ELECTRONICS TRAINED ENGINEERS
SINGLE UNIT	1	1.56	.78
2 - 5	2	2.50	1.60
6 - 19	3	4.00	4.00
20+	4	6.00	4.00

EXHIBIT VII-11

STAFF DEPLOYMENT BY SIZE GROUP OF ESTABLISHMENT

Results are recorded as Exhibit VII-10. Note the following:

- As a general rule the establishments belonging, or being affiliated to larger groups have more staff in total.

- There is little difference in total staffing between category 3 and category 4 establishments.

- Detailed differences exist between groups but groups 1 and 2 establishments demonstrate similar levels in SERVICE and ADMINISTRATION. Similarly, groups 3 and 4 establishments present like numbers of personnel in these two areas.

- The total number of SALES personnel increases according to size group showing the following:

Establishment Size Group	Total Sales Personnel per estab.
1.	3.95
2.	3.81
3.	9.70
4.	10.20

Once again, for SALES personnel the staffing levels are strikingly similar for 1 and 2 classes and for 3 and 4 classes.

Exhibit VII-11 features the extract of systems trained staff per location.

STAFF DEPLOYMENT BY TURNOVER

Results are recorded as Exhibit VII-12. Note the following:

EXHIBIT VII-12

MICRO COMPUTERS - UK DISTRIBUTION

- OFFICE PRODUCT DEALERSHIPS

STAFF DEPLOYMENT						
FREQUENCY DISTRIBUTION OF TURNOVER	STAFF PER ESTABLISHMENT					
	SALES IN	SALES OUT	SERVICE	ADMIN-ISTRATION	OTHER	TOTAL
#50-149K	.62	1.06	2.30	1.96	.55	6.49
#150-249K	1.52	1.96	3.32	2.92	.28	10.00
#250-499K	2.21	2.76	4.90	3.93	.64	14.45
500,000K+	3.57	6.42	8.52	7.95	5.52	32.00

- The larger the turnover the more people go towards its creation.

- A more pronounced increase takes place at the £500,000 plus level. Whereas in the lower frequencies staffing levels increase by approximately 30% from class to class, at the top frequency the staff increase is over double that for the previous class.

- The average national turnovers of the four frequency classes are projected as follows:

Turnover Class	Ave Turnover
1 = £50 - 149 K	£ 141 K per annum
2 = 150 - 249 K	196 K per annum
3 = 250 - 499 K	411 K per annum
4 = 500,000 +	830 K per annum

These figures provide a national average Turnover per location of £260,000.

- Average staff employed to generate this figure were 11.11 per establishment. This gives a per capita product of £23,402.

ESTABLISHMENT/TURNOVER CROSS ANALYSIS

Results are recorded as Exhibit VII-13. Note the following:

- By far the largest proportion of the establishments are single establishment enterprises. Within this class a significant percentage account for turnovers in excess of £500,000.

- The distribution of Turnovers is properly pyramidical demonstrating the highest proportion in the lowest turnover areas.

MICRO COMPUTERS - UK DISTRIBUTION

OFFICE PRODUCT DEALERSHIPS

ESTABLISHMENT/TURNOVER CROSS ANALYSIS (NATIONAL)				
FREQUENCY DISTRIBUTION OF TURNOVER	PERCENT OF UNIVERSE IN SIZE GROUPS			
	1	2	3	4
£ 50 - 149K	80.77	16.67	.00	2.56
£150 - 249K	66.67	25.00	5.56	2.78
£250 - 499K	64.91	24.56	3.51	7.02
£500,000K+	54.24	23.73	13.56	8.47

EXHIBIT VII-13

TURNOVER DERIVATION

Results are recorded as Exhibit VII-14. Note the following:

- All size groups demonstrate that more turnover is derived from EQUIPMENT sales than from any other source.

- Category 2 establishments generate more sales of equipment than other categories.

- Category 4 establishments generate nearly as much revenue from furniture as from equipment.

- Category 1 and 4 have higher SERVICE revenues than 2 and 3.

- Category 1 establishments generate more revenue from SUPPLIES than other categories.

PRODUCT COVERAGE

Results are recorded as Exhibit VII-15 and show a trend suggesting that the higher the size group of an establishment the greater is the liklihood of all products being covered in some depth.

- Size Group 1 have an even spread of product coverage but are less present in higher value products such as PHOTOCOPIERS, WORD PROCESSORS and DATA PROCESSORS. This is compensated slightly by a relatively high value in the SUPPLIES area.

- As 80% of Size Group 1 establishments are in the £50,000 -£149,000 turnover group the lack of presence in higher value units is confirmed through the necessity of generating higher revenues to sustain stock and support costs.

MICRO COMPUTERS - UK DISTRIBUTION

OFFICE PRODUCT DEALERSHIPS

TURNOVER DERIVATION (NATIONAL)						
SIZE GROUP OF ESTABLISHMENTS		TURNOVER PERCENT				
		EQUIP-MENT	SUP-PLIES	FURN-ITURE	SER-VICE	OTHER
SINGLE UNIT	1	43.15	22.04	15.27	18.69	.86
2 - 5	2	53.24	19.28	17.75	6.72	3.02
6 - 19	3	46.62	14.55	27.66	7.58	3.59
20+	4	32.79	18.32	31.24	13.69	3.95

EXHIBIT VII-14

EXHIBIT VII-15

MICRO COMPUTERS - UK DISTRIBUTION

OFFICE PRODUCT DEALERSHIPS

SIZE GROUP OF ESTABLISHMENTS		PRODUCT COVERAGE (NATIONAL) TYP	DICT	COP	W.P.	D.P.	SUP-PLIES
SINGLE UNITS	1	91.70	84.48	74.37	15.88	31.77	93.14
2 - 5	2	79.21	82.18	86.14	19.80	37.62	92.08
6 - 19	3	100.00	95.65	95.65	60.87	47.83	95.65
20+	4	95.24	95.24	95.24	65.08	84.13	98.41

- Size Group 2 shows surprisingly low presence in TYPEWRITERS which is probably accounted for by the number of speciality businesses which fall into this category. A low presence is also shown in DICTATION equipment whilst WP and DP products follow the trend of size/product coverage which is stated above.

- Size Group 3 clearly demonstrate the trend and it is particularly interesting to note the dramatic increase in Word Processing presence at 60.87% of establishments.

- Size Group 4 establishments show a far more even spread of product coverage. Note the very high presence in DP.

OFFICE PRODUCT DEALERS AND DISTRIBUTION OF COMPUTER PRODUCTS

- Exhibit VII-16 illustrates that 44% of the total 464 outlets sampled is currently offering some kind of computer product. Within this total, (204 outlets) the various levels of product coverage are presented individually. Note the following:

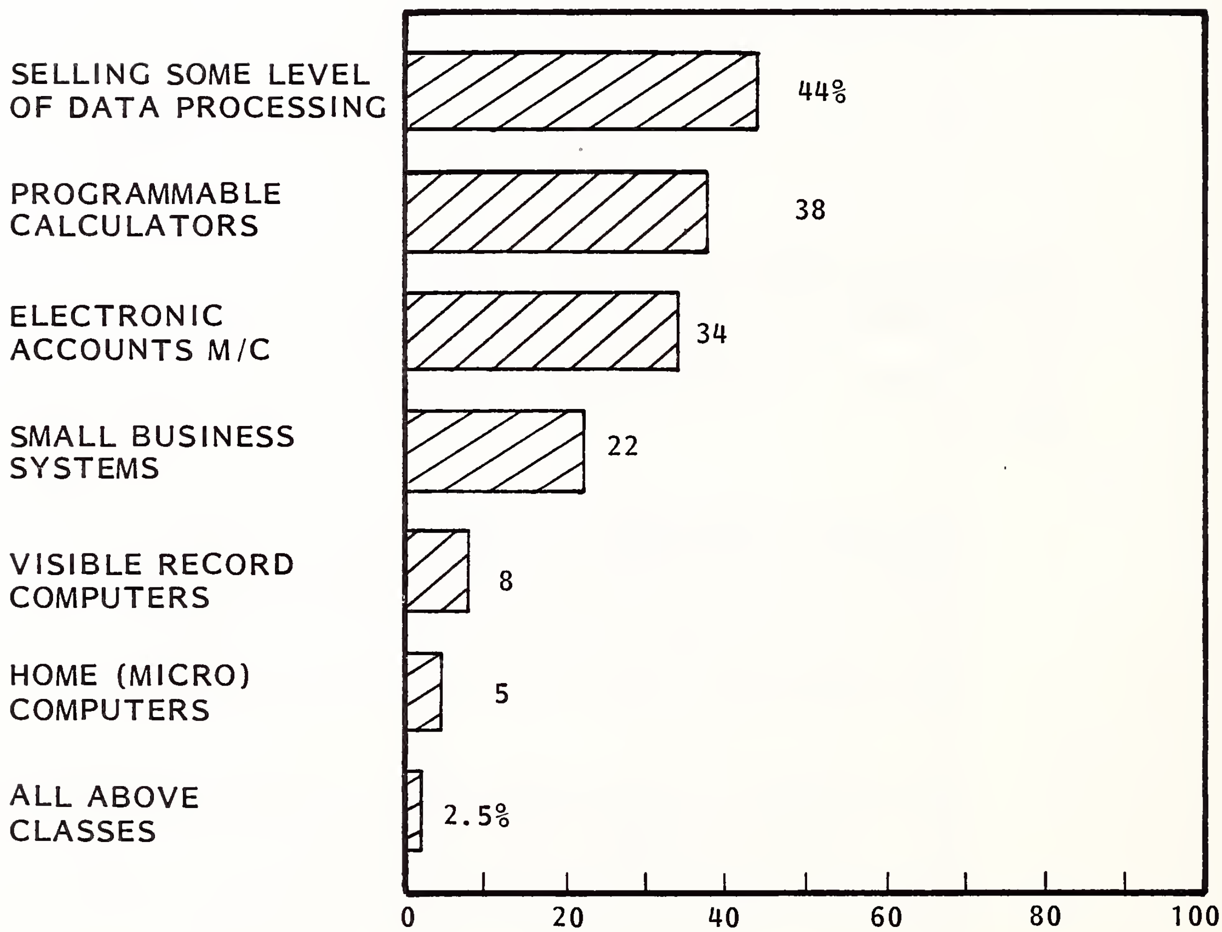
  - For Business penetration the most suitable outlets are those offering SMALL BUSINESS SYSTEMS (297 establishments), VRC's (108 establishments) and Electronic Accounts machines (459 outlets). These calculations are extended to the Universe of 1350 establishments.

  - The likelihood of Small Business Systems dealers crossing swords with their traditional suppliers in order to represent a conflicting product is only determined by the level of support the supplier is giving. However most dealers would approach this matter with caution.

- Two product coverage areas are interesting to a principal seeking dealer representation. These are Electronic Accounts machines vendors (459 outlets) and Programmable calculator vendors (513 outlets).

MICRO COMPUTERS - UK DISTRIBUTION

OFFICE PRODUCT DEALERSHIPS OFFERING
SOME LEVEL OF DATA PROCESSING



(SAMPLE = 464 RESPONSES OR 34% OF UNIVERSE)

EXHIBIT VII-16

- Both these product areas occupy technology bases beneath that of the micro based business system.

- A logical progression can be made into this technology provided necessary support facilities are covered by the outlet. In other words, these establishments will already have crossed the threshold into business systems sales.

• The INPUT directory of OFFICE PRODUCT DEALERSHIPS identifies those establishments who have reached this level of development and who could therefore be ready to take over a new role.

D. NON-SPECIALIST RETAIL OUTLETS

• Although non-specialist outlets account for over 90% of available outlets, to date they are only accountable for 6% of total micro sales. There are several reasons for this:

  - A large per cent of these stores do not carry micros as a major product line and do not allocate a lot of effort/investment to the marketing of these products.

  - As long as the market remains home/hobbyist in orientation, they can continue to serve this sort of domestic market. (The user often does his own software programming and technical support).

  - Many of these outlets will be excluded in the future unless they can provide the necessary back-up services as the market moves into business user mode.

• Currently many of these outlets act solely as hardware vendors, e.g. Laskys.

- Many are not computer oriented although some do possess hardware maintenance/support capability.

- Certain advantages attach to non-specialist dealers:

  - high catchment capability owing to their locations often in high street and busy trading areas,

  - if domestic market grows (i.e. in terms of domestic entertainment/fulfilling the function like a music centre) they will be well placed for capturing this market.

- ACE (Advanced Consumer Electronics subsidiary of Dixons photographic group) has just netted the exclusive UK distributorship from Mattel (US toymaker) for Intellivision, a computer based system to be marketed both in the UK and US from October. Intellivision is sold in two parts. The first part is a £180 unit which plugs into a television aerial socket and offers "very Sophisticated games". For an additional £180 one acquires an additional typewriter keyboard with built in cassette drive. Available programs will work out UK tax returns and compile shopping lists etc.

E. TV RENTAL STORES

- Leading Organisations such as Granada, DER, British Relay, Visionhire, Redifusion and Radio Rentals have approximately 1,500 high street offices. These organisations are not to be overlooked as a viable distribution network, due to various factors which include:

  - availability of electronics trained staff to provide necessary maintenance support,

- the overlap between the personal computer market/domestic user market through the availability of Prestel,

- the possibility of offering TV sets with Prestel capability on a weekly or monthly rental basis for domestic/professional use,

- their marketing capability regarding TV sets capable of receiving both Ceefax and Oracle, and also interfacing to the Post Office Prestel service which allows the TV user to access information from large computer databases for display on the TV set.

- Rental companies and TV manufacturers forecast sales of Prestel sets to reach 16.000 units installed by December 1979, with production running at 1,000 sets per week also by that time. However, consumer prices are high. The provision of a Ceefax/Oracle receiver currently costs £440 and Prestel sets cost £1,200. Companies are hoping that the government can be encouraged to give tax relief on telex systems and thereby encourage sales. At present, sales are in the region of 2,000 per month and are cummulatively running some 15% below the December target. Before the election the Department of Industry had agreed in theory, to subsidize the TV industry to the tune of £5 - £7 million a year. No contra statement has been published by the current administration.

  It is hoped that users both personal and business will rent sets (approx £24 per month) or on a weekly basis before buying or entering into long term leasing.

- All TV manufacturers are believed to be developing their plans for marketing micros and investments in the next three years by TV companies is expected to exceed £200 million.

F. RATINGS OF ALTERNATIVE CHANNELS

- The four categories of outlets are presented in tabular form with a grading system applied against each of fourteen categories (see Exhibit VII-17).

- The categories are those which are considered important components of the profile necessary to equip an outlet for distribution of micro products to the business market.

- Simple and obvious criteria such as FINANCIAL STABILITY, CREDIT WORTHINESS, CONTINUITY etc., have purposely been left out of this matrix.

- Missing from the profile is the relative weighting of each priority. This needs considerably greater refinement and is outside the cost parameters of the study.

- In stricter summary form, the marks given are as follows:

  - Office product dealers. 48.5%
  - Software/Systems Houses. 73.0%
  - Specialized Micro Computer Dealers. 71.0%
  - Non specialist retail outlets. 22.0%.

- At this stage, the lack of support facilities available through prime facie excellent openings, like Office Product dealers, is the major area of shortcoming. It is clear that once this aspect is rationalised and developed, then both Office Product outlets and Non specialist retail operations will have a far better chance of penetrating the market.

EXHIBIT VII-17

MICRO-COMPUTERS - UK DISTRIBUTION

OUTLETS' RATINGS				
TYPE OF ORGANISATION / QUALITIES	OFFICE PRODUCT DEALERS	SOFTWARE/ SYSTEMS HOUSES	SPECIALIZED MICRO-COMPUTER DEALERS	NON-SPECIALIST RETAIL OUTLETS
NUMBER OF OUTLETS	●●●●	●●	●●	●●●●●
CONTACT WITH BUSINESS MARKET	●●●●	●●●●	●●●	●●
ADAPTABILITY TO PROSPECTIVE BUSINESS USER NEEDS	●●●	●●●●	●●●●	●●
DATA PROCESSING OFFERINGS	●●●	●●●●	●●●●●	●●
ENGINEERING & HARD WARE MAINTENANCE BACKGROUND	●●●	●●●	●●●●	●
EXPERIENCE IN SELLING SYSTEMS PRODUCTS	●●	●●●●	●●●	●
EXPERIENCE IN TURNKEY SYSTEMS	●	●●●●	●●●	●
IN-HOUSE SOFTWARE PROGRAMMERS	●	●●●●	●●●	●
MAINTENANCE CONTRACT FACILITIES	●●●	●●●	●●●●	●
APPLICATION PACKAGES EXPERTISE	●	●●●●	●●●●●	●●
ABILITY TO TAILOR SOFTWARE	●	●●●●●	●●●●	●
TECHNICAL BACK-UP	●●	●●●●	●●●●	●
DEMONSTRATION FACILITIES	●●●●	●●	●●●	●
PROVISION OF CUSTOMER EDUCATION	●●	●●●	●●●●	●

VIII. CONCLUSIONS AND RECOMMENDATIONS

VIII. CONCLUSIONS AND RECOMMENDATIONS

- The keys to successful distribution of business micro computer products are SOFTWARE SUPPORT and DEVELOPMENT and visible MAINTENANCE.

- Such facilities must be visible to the user and ruthlessly featured in sales campaigns from media advertising stage through to user implementation and beyond.

- Target enterprise size should be in the 10 - 100 employee size group as it is in this area that repeat business should be available in a narrow time frame.

- Distribution and application development of Philips label products should be on two levels:

  (i) - Regional Distributors - appointed direct by Philips (no more than 30).

  - Area dealers appointed by distributors with a responsibility via the Distributors (up to 900).

  (ii) - Central Software Support will develop application software for regional distributors to disseminate.

  - Regional Software support staff will be responsible for field and company liaison work between the regional distributors and Philips.

- At the same time, to achieve penetration on two other fronts the following can be considered:

MICRO COMPUTERS - U.K. DISTRIBUTION

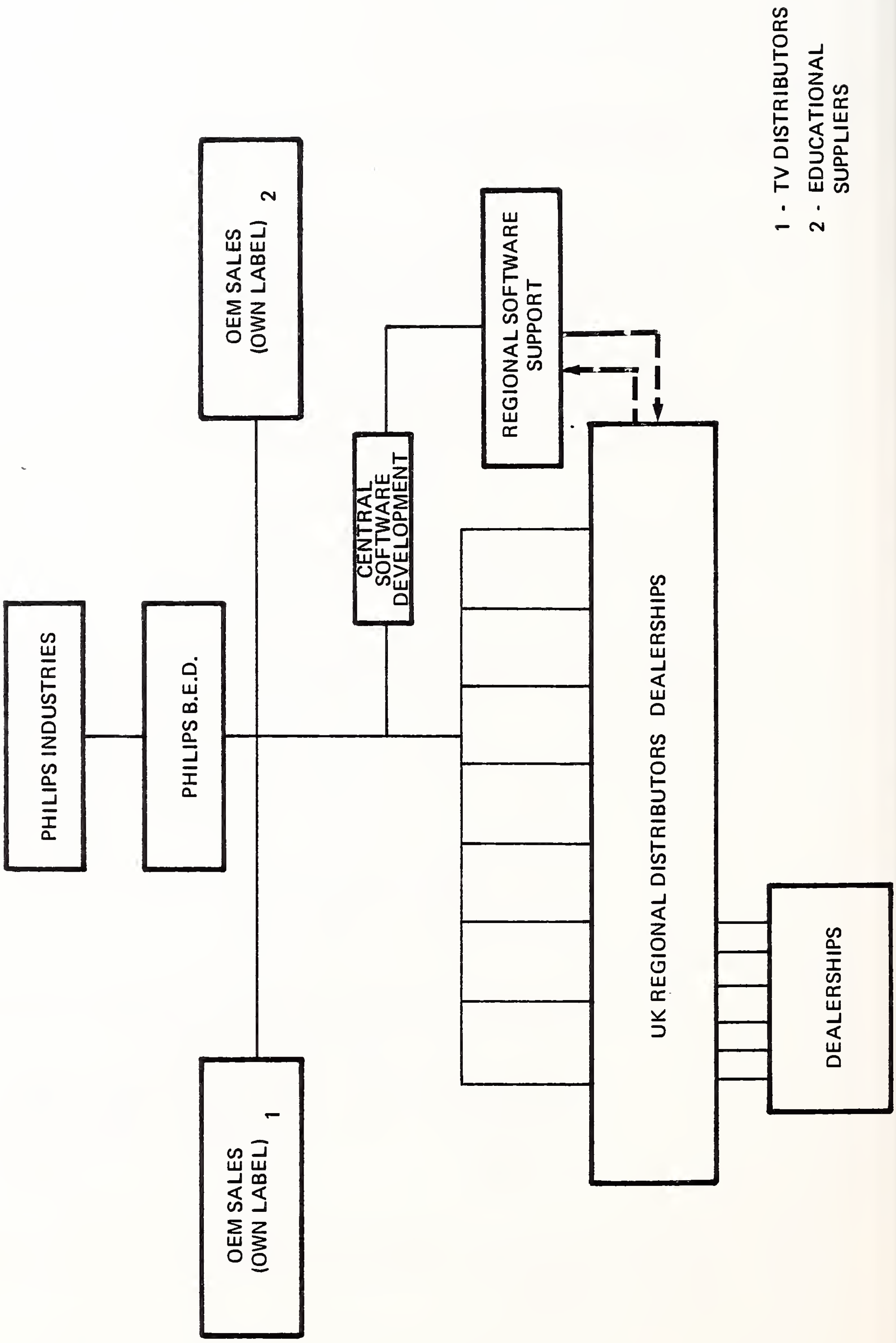


EXHIBIT VIII-1

- OEM operation on a vertical market basis (e.g. EDUCATIONAL MARKET) whereby an alternative brand is directed to a given market with attendant application support.

- OEM operation on a horizontal basis via TV distributors or non specialist houses. Alternative brand is essential to avoid market conflict.

- In either of the above cases software support is an advisable option available to the OEM Purchaser - but not a mandate. Exhibit VIII-1 summarises these proposals.

- As an alternative to finding its own software development operation for micros Philips can elect to appoint a bureau in a supporting role in a given area. Indeed, encouragement of bureaux to co-operate with Philips on a wide scale should be given careful consideration.

APPENDICES

1. Letter to PHILIPS introducing study elements.
2. Telex acceptance to offer.
3. Questionnaire to Vendors.
4. Quesstionnaire to Users.

1. Letter to PHILIPS introducing study elements.

INPUT

EMPIRE HOUSE, 414 CHISWICK HIGH ROAD, LONDON W4 5TF
TELEX No. 896739 TELEPHONE: (01) 995 5397

Mr D. E. Farge
CMM Department
Philips Industries
8 Arundel Street
London WC2

12 July 1979

Dear Mr Farge

Following our conversation yesterday I am now confirming the points discussed on the matter of our customizing part of our micro-computer distribution study.

(1) The output of the study would contain:

- an overview of the micro computer market including product offerings; estimated market shares; industry penetration forecasts and trends

- a cross analysis of the mini computer market with supplier attitudes to micros; market shares and trends

- an analysis of the office product dealerships focussing particularly on geographic areas of UK and the dealer profiles necessary to equip an outlet for distribution

- an analysis of a sub sample of "computer shops" for comparison with office product dealerships.

- An analysis of a special sample of user drawn from:
    - Retailers
    - Small industrial outlets
    - Educational outlets
    - Professions (Accountants, Estate Agents, Solicitors, etc.)

- A short report on configurations and application software together with an overview of communication trends as they impact micro computers.

- A resume of alternative distribution channels.

It is currently anticipated that our report will be scheduled for delivery by end August but that an interim presentation should take place during that month subject to written authorities being received here.

I am confirming our acceptance of this brief by means of a copy of this letter to Mr Hezemmans of PDS Apelboorn to whom all

outputs of the study will be submitted, and from whom I still await written confirmation of the order.

Yours sincerely
INPUT EUROPE B.V.

James A. Hayman
Associate Director

2. Telex acceptance to offer.

AH044 13.54
896739 INPUT G
KEY+23171407+EX645
5
896739 INPUT G
889051 PIRLYA G
ZCZC LTA418 131424 PEH113 LDB951 131525 APL186
RR UKPTELX
140
+++
896739 INPUT G
.
13/8/79 WV159
INPUT LONDON UK
ATT MR M STANLEY/MR J HAYMAN

CC MR FARGE
PH LONDON UK TX 267518

THIS IS TO CONFIRM OUR AUTHORIZATION OF MODULE 5 DATA PROCESSING SUTDY FOR PNDS 4,000 AS DESCRIBED DURING YOUR PRESENTATION ON JUNE 26TH IN LONDON. I WAS OF THE OPINION THAT I ALREADY AUTHROIZED THIS STUDY IN MY TX TOMR STANLEY IN EARLY JULY. PRESENTATION OF THE RESULTS IS SCHEDULED FOR SEPTEMBER 5TH IN LONDON PROVISIONALLY.
PLEASE DETAILED ARRANGEMENTS WITH MR D FARGE

JM HEZEMANS
PDS APELDOORN HOLLAND/NPHAPDL

=08131428
PRISM
NNNN
889051 PIRLYA G
896739 INPUT G

3. Questionnaire to Vendors.

CONFIDENTIAL

INPUT QUESTIONNAIRE

CATALOG. NO | Y | P | 1 | 2 | | | |
SIC. CODE
SIZE CODE
AREA CODE
STUDY CODE
DATE (MM DD YY)

STUDY TITLE: BUSINESS MICROCOMPUTERS: UK DISTRIBUTION OPTIONS

TYPE OF INTERVIEW: [X] VENDOR ☐ TELEPHONE
☐ USER ☐ ON-SITE
☐ MAIL

INTERVIEWER: ______________________

COMPANY: ______________________ CO. TYPE: ______________________

ADDRESS: ______________________ SALES: ______________________

______________________ DATE BUSINESS FORMED: ____________ D/M/Y

______________________ CURRENT TURNOVER: £ ____________

____

INDUSTRY ☐

☐ DISCRETE MANUFACTURING ☐ UTILITIES ☐ INSURANCE
☐ PROCESS MANUFACTURING ☐ RETAIL ☐ GOVERNMENT- FEDERAL
☐ TRANSPORTATION ☐ BANKING ☐ GOVERNMENT-STATE & LOCAL
☐ MEDICAL ☐ WHOLESALE ☐ EDUCATION
☐ SERVICES ☐ OTHER

INTERVIEWS

NAME	TITLE	TELEPHONE NO.

SUMMARY

____

REFERENCES

____

STAFF

1. How many employees are there in each of the following categories?

a. Sales ____________

b. Software Support ____________

c. Hardware Support/Maintenance ____________

d. Administration ____________

e. Other ____________________ ____________

Total Staff ____________

PRODUCTS SOLD

2.

NAME OF MAKER	CODE NAME/REFERENCE OF PRODUCT	DATE STARTED	APPROX. NUMBER SOLD TO DATE	AVERAGE VALUE PER UNIT SOLD

REVENUE

3. How is your turnover generated?

   a. Machine Sales/Rentals ________ %

      - Indicate what percent of your sales are generated from rental contracts ________ %

   b. Software Sales ________ %

   c. Maintenance ________ %

   d. Supplies ________ %

   e. Other (List)

      ______________________________ ________ %

      ______________________________ ________ %

      ______________________________ ________ %

MAINTENANCE

4. Do you offer maintenance contracts? ☐ Yes ☐ No

   a. If yes, how much do these cost per annum? ________________

   b. Are all parts inclusive in price? ☐ Yes ☐ No

   c. Do you offer customer on-site maintenance? ☐ Yes ☐ No

   d. Do you offer replacement machine while repair is being done? ☐ Yes ☐ No

   e. What do you guarantee to your customers as response time? ________________

SALES

5. What proportion of sales are:

   a. To Business Users ________ %

   b. To Educational Users ________ %

   c. To Hobbyists ________ %

   d. To Others ________ %

6. Is finance an important ingredient of the sale? ☐ Yes ☐ No

APPLICATIONS AND SOFTWARE POLICY

7. Within the business area, what applications are most popular:
   (Interviewer to list responses without prompting please)

   ____

   ____

   ____

   ____

   ____

   ____

8. Do you rely wholly on the makers software packages? ☐ Yes ☐ No

9. Do you write your own? ☐ Yes ☐ No

10. Do you have an arrangement with a software house to develop packages on your behalf? ☐ Yes ☐ No

11. Do you offer any reliable software package? ☐ Yes ☐ No

12. Present additional comments on software policy:

____

____

____

____

13. What improvements would you like to see in packages from your main supplier? (By Named Supplier)

____

____

____

____

14. What would you list as the five most important considerations a microcomputer buyer has when evaluating a system? (Interviewer to list responses without prompting)

a. ____

b. ____

c. ____

d. ____

e. ____

BUSINESS USERS

15. Identify what sorts of business users are buying: (Please give percent responses)

a. Professions (lawyers, estate agents, etc.) ________ %

b. Retailers

- Single Location ________ %
- Multi Location ________ %
- Department Store ________ %

Total Retailers ________ %

c. Departments of Major Companies ________ %

d. Manufacturing Companies

- Small - 2-50 Employees ________ %
- Medium - 51-500 Employees ________ %
- Large - 501+ Employees ________ %

Total Manufacturing ________ %

e. Other ________ %

16. Identify and list other factors on sorts of businesses buying:

____

____

____

____

____

____

INF

SUPPORT

17. What level of support does the user expect?

____

____

____

____

18. Are you fully staffed to cope with customer demand for support (i.e., customer education)? ☐ Yes ☐ No

19. Do you offer turnkey solutions based on microcomputers? ☐ Yes ☐ No

20. If so, how are these priced?

a. Equipment priced separately to software and implementation ________

b. Total price for complete service quoted to customer ________

c. Equipment only priced separately ________

21. Do you offer a separate implementation service at extra cost?

☐ Yes ☐ No

22. Is there a demand for this? ☐ Yes ☐ No

4. Questionnaire to Users.

CONFIDENTIAL

INPUT QUESTIONNAIRE

CATALOG. NO	Y P 1 2
SIC. CODE	
SIZE CODE	
AREA CODE	
STUDY CODE	
DATE	MM DD YY

STUDY TITLE: BUSINESS MICROCOMPUTERS: UK DISTRIBUTION OPTIONS

TYPE OF INTERVIEW: ☐ VENDOR ☒ USER ☐ TELEPHONE ☐ ON-SITE ☐ MAIL

INTERVIEWER: ______

COMPANY: ______ CO. TYPE: ______

ADDRESS: ______ SALES: ______

______ # EMPL: ______

______

______

INDUSTRY

☐ MANUFACTURING 1
☐ BANKING/FINANCE 2
☐ ASSURANCE 3
☐ RETAIL/DISTRIBUTION 4
☐ EDUCATION 5
☐ HEALTH 6
☐ TRANSPORTATION 7
☐ PROFESSIONS 8
☐ GOVERNMENT 9
☐ OTHER 10

CLASS OF USER

☐ HOBBY ONLY
☐ HOBBY/BUSINESS
☐ BUSINESS ONLY

INTERVIEWS

NAME	TITLE	TELEPHONE NO.

SUMMARY

______

REFERENCES

______

1. Size of business (turnover):

25 - 99	☐
100 - 249	☐
250 - 499	☐
500 - 749	☐
750 - 999	☐
>1000K	☐

2. Number of staff:

1 - 5	☐
6 - 9	☐
10 - 19	☐
20 - 50	☐
>50	☐

3. Type of system:

a. Date Installed ____________________

b. Name ____________________

c. Memory Size ____________________

d. Peripherals (List) ____________________

____

____

____

____

____

INP

4. Do you or does your organization have a knowledge of computers?

	Self	Organization
a. High Level	____	____
b. Medium Level	____	____
c. Low Level	____	____
d. No Knowledge	____	____

5. How did you learn about the capabilities of microcomputers?

a. Press Advertising ☐

b. Professional Advice ☐

c. Salesman Called ☐

d. Visited Shop on Another Purpose ☐

e. Other (List) ____________________ ☐

____

____

____

6. Did you see another users machine and talk to him about it before buying yours? ☐ Yes ☐ No

a. If yes, who? ____

____

7. What attracted you to microcomputers?

a. Speed Up Business ☐

b. Cut Staff ☐

c. Save Money ☐

d. Moving With Times ☐

e. Other ☐

8. Have you been satisfied with performance? ☐ Yes ☐ No

a. Please comment on why you have or haven't been satisfied:

____

____

____

____

____

____

9. Applications in use or planned:

		Used	Planned
a.	Payroll	☐	☐
b.	Invoicing	☐	☐
c.	Nominal Ledger	☐	☐
d.	Sales Ledger	☐	☐
e.	Sales Analysis	☐	☐
f.	Bought Ledger	☐	☐
g.	Inventory Control	☐	☐
h.	Stock Control	☐	☐
i.	Time Accounting	☐	☐
j.	Other (List) ______________	☐	☐
	______________	☐	☐

INPU

10. Do you get good support from your supplier?

    a. First Class Support ______

    b. Satisfactory ______

    c. Not Good ______

11. How would you like to see support by your supplier/manufacturer improved?

____

____

____

____

12. Do you plan to expand the configuration by adding more hardware of peripherals? ☐ Yes ☐ No

    If yes, what sort?

    a. Bigger Memory Size ______

    b. Printer ______

    c. Communications Interface ______

14. How has the acquisition of the microcomputer benefitted you?

____

____

____

____